

WEST[Help](#)[Logout](#)[Interrupt](#)[Main Menu](#)[Search Form](#)[Posting Counts](#)[Show S Numbers](#)[Edit S Numbers](#)[Preferences](#)[Cases](#)**Search Results -**

Terms	Documents
octakis silsesquioxane	23

Database:

US Patents Full-Text Database
US Pre-Grant Publication Full-Text Database
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EPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search:

L3

[Refine Search](#)[Recall Text](#)[Clear](#)**Search History****DATE:** Tuesday, November 18, 2003 [Printable Copy](#) [Create Case](#)**Set Name**
side by side**Query****Hit Count** **Set Name**
result set*DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=AND*

<u>L3</u>	octakis silsesquioxane	23	<u>L3</u>
<u>L2</u>	silsesquioxane	3117	<u>L2</u>
<u>L1</u>	octakis(aminophenyl)silsesquioxane	1	<u>L1</u>

END OF SEARCH HISTORY

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 10 of 23 returned.**☐ 1. Document ID: US 20030207208 A1

L3: Entry 1 of 23

File: PGPB

Nov 6, 2003

PGPUB-DOCUMENT-NUMBER: 20030207208

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030207208 A1

TITLE: Intermediate layer composition for three-layer resist process and pattern formation method using the same

PUBLICATION-DATE: November 6, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Uenishi, Kazuya	Shizuoka		JP	

US-CL-CURRENT: 430/272.1; 430/323

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMCM
Draw Desc	Image									

☐ 2. Document ID: US 20030204038 A1

L3: Entry 2 of 23

File: PGPB

Oct 30, 2003

PGPUB-DOCUMENT-NUMBER: 20030204038

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030204038 A1

TITLE: Hybrid organic-inorganic light emitting polymers

PUBLICATION-DATE: October 30, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Xiao, Steven	Laval		CA	
Nguyen, My T.	Kirkland		CA	

US-CL-CURRENT: 528/10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMCM
Draw Desc	Image									

☐ 3. Document ID: US 20030187080 A1

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 3 through 12 of 23 returned.**☐ 3. Document ID: US 20030187080 A1

L3: Entry 3 of 23

File: PGPB

Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030187080

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030187080 A1

TITLE: Preparation of macroreticular polymers

PUBLICATION-DATE: October 2, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Jiang, Biwang	Horsham	PA	US	
Parker, Garth Rockwood JR.	Lansdale	PA	US	

US-CL-CURRENT: [521/25](#); [521/30](#), [521/32](#), [521/37](#), [526/194](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KVMC
Draw Desc	Image									

☐ 4. Document ID: US 20030120099 A1

L3: Entry 4 of 23

File: PGPB

Jun 26, 2003

PGPUB-DOCUMENT-NUMBER: 20030120099

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030120099 A1

TITLE: Well-defined nanosized building blocks for organic/inorganic nanocomposites

PUBLICATION-DATE: June 26, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Laine, Richard M.	Ann Arbor	MI	US	
Tamaki, Ryo	Foster City	CA	US	
Choi, Jiwon	Ann Arbor	MI	US	

US-CL-CURRENT: [556/450](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KVMC
Draw Desc	Image									

☐ 5. Document ID: US 20030116273 A1

L3: Entry 5 of 23

File: PGPB

Jun 26, 2003

PGPUB-DOCUMENT-NUMBER: 20030116273
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030116273 A1

TITLE: Method of bonding an optical part

PUBLICATION-DATE: June 26, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nakamura, Koichiro	Osaka-shi		JP	
Shikata, Hiroko	Osaka-shi		JP	
Yamamoto, Hiroaki	Osaka-shi		JP	

US-CL-CURRENT: 156/330; 156/310, 156/314

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 6. Document ID: US 20030078443 A1

L3: Entry 6 of 23

File: PGPB

Apr 24, 2003

PGPUB-DOCUMENT-NUMBER: 20030078443
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030078443 A1

TITLE: Polyalkylene oxide porogens having hyper-branches and low dielectric-constant insulators using them

PUBLICATION-DATE: April 24, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Lee, Changjin	Daejeon		KR	
Kang, Yongku	Daejeon		KR	
Kang, Jong Goo	Choongjoo-shi		KR	
Kim, Hee Jung	Busan		KR	
Jin, Moon Young	Daejeon		KR	
Seok, Sang Il	Daejeon		KR	
Char, Kookheon	Seoul		KR	
Chu, Sang-Hyun	Seoul		KR	

US-CL-CURRENT: 549/497; 552/115, 556/464, 568/325, 568/662

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 7. Document ID: US 20030055134 A1

L3: Entry 7 of 23

File: PGPB

Mar 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030055134
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030055134 A1

TITLE: Composition for preparing substances having nano-pores

PUBLICATION-DATE: March 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Yim, Jin Heong	Daejun-Shi		KR	
Lyu, Yi Yeol	Daejun-Shi		KR	
Mah, Sang Kook	Seoul		KR	
Nah, Eun Ju	Daejun-Shi		KR	
Hwang, Il Sun	Daejun-Shi		KR	
Yoon, Keun Byoung	Daejun-Shi		KR	

US-CL-CURRENT: 524/48; 257/E21.262, 257/E21.273

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KIMC
Draw Desc	Image									

☐ 8. Document ID: US 20030054180 A1

L3: Entry 8 of 23

File: PGPB

Mar 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030054180
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030054180 A1

TITLE: Film obtained from silsesquioxane polymer and method of preparing same

PUBLICATION-DATE: March 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kobayashi, Toshiaki	Ushiku-shi		JP	
Hayashi, Teruyuki	Matsudo-shi		JP	
Tanaka, Masato	Tokyo		JP	
Yamaguchi, Kouichi	Otsu-shi		JP	

US-CL-CURRENT: 428/447

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KIMC
Draw Desc	Image									

☐ 9. Document ID: US 20030033931 A1

L3: Entry 9 of 23

File: PGPB

Feb 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030033931
PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030033931 A1

TITLE: Porous gas permeable material for gas separation

PUBLICATION-DATE: February 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Sammons, Jack	Louisville	KY	US	
Goddard, David M.	Louisville	KY	US	

US-CL-CURRENT: 95/45; 96/4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMIC
Draw Desc	Image									

☐ 10. Document ID: US 20020143132 A1

L3: Entry 10 of 23

File: PGPB

Oct 3, 2002

PGPUB-DOCUMENT-NUMBER: 20020143132

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020143132 A1

TITLE: Silsesquioxane polymer molding and method of preparing same

PUBLICATION-DATE: October 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kobayashi, Toshiaki	Ushiku-shi		JP	
Hayashi, Teruyuki	Matsudo-shi		JP	
Tanaka, Masato	Tokyo		JP	

US-CL-CURRENT: 528/10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMIC
Draw Desc	Image									

☐ 11. Document ID: US 20020074086 A1

L3: Entry 11 of 23

File: PGPB

Jun 20, 2002

PGPUB-DOCUMENT-NUMBER: 20020074086

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020074086 A1

TITLE: Adhesive composition and optical device using the same

PUBLICATION-DATE: June 20, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nakamura, Koichiro	Osaka		JP	
Hori, Masahiro	Osaka		JP	
Yamamoto, Hiroaki	Osaka		JP	

US-CL-CURRENT: 156/329; 524/731

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 12. Document ID: US 6632748 B2

L3: Entry 12 of 23

File: USPT

Oct 14, 2003

US-PAT-NO: 6632748

DOCUMENT-IDENTIFIER: US 6632748 B2

TITLE: Composition for preparing substances having nano-pores

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

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octakis silsesquioxane	23

Display Format: [Change Format](#)[Previous Page](#)[Next Page](#)

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L3: Entry 11 of 23

File: PGPB

Jun 20, 2002

PGPUB-DOCUMENT-NUMBER: 20020074086

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020074086 A1

TITLE: Adhesive composition and optical device using the same

PUBLICATION-DATE: June 20, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nakamura, Koichiro	Osaka		JP	
Hori, Masahiro	Osaka		JP	
Yamamoto, Hiroaki	Osaka		JP	

US-CL-CURRENT: 156/329; 524/731

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 12. Document ID: US 6632748 B2

L3: Entry 12 of 23

File: USPT

Oct 14, 2003

US-PAT-NO: 6632748

DOCUMENT-IDENTIFIER: US 6632748 B2

TITLE: Composition for preparing substances having nano-pores

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 13. Document ID: US 6558455 B2

L3: Entry 13 of 23

File: USPT

May 6, 2003

US-PAT-NO: 6558455

DOCUMENT-IDENTIFIER: US 6558455 B2

TITLE: Porous gas permeable material for gas separation

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 14. Document ID: US 6472076 B1

L3: Entry 14 of 23

File: USPT

Oct 29, 2002

US-PAT-NO: 6472076

DOCUMENT-IDENTIFIER: US 6472076 B1

**** See image for Certificate of Correction ****

TITLE: Deposition of organosilsesquioxane films

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 15. Document ID: US 6425936 B1

L3: Entry 15 of 23

File: USPT

Jul 30, 2002

US-PAT-NO: 6425936

DOCUMENT-IDENTIFIER: US 6425936 B1

TITLE: Porous gas permeable material for gas separation

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 16. Document ID: US 6277451 B1

L3: Entry 16 of 23

File: USPT

Aug 21, 2001

US-PAT-NO: 6277451

DOCUMENT-IDENTIFIER: US 6277451 B1

TITLE: Liquid crystal materials and devices

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 17. Document ID: US 6270561 B1

L3: Entry 17 of 23

File: USPT

Aug 7, 2001

US-PAT-NO: 6270561

DOCUMENT-IDENTIFIER: US 6270561 B1

TITLE: Hot melt ink compositions for inkjet printing applications

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 18. Document ID: US 6093676 A

L3: Entry 18 of 23

File: USPT

Jul 25, 2000

US-PAT-NO: 6093676

DOCUMENT-IDENTIFIER: US 6093676 A

**** See image for Certificate of Correction ****

TITLE: Photocatalyst-binder compositions

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 19. Document ID: US 5854169 A

L3: Entry 19 of 23

File: USPT

Dec 29, 1998

US-PAT-NO: 5854169

DOCUMENT-IDENTIFIER: US 5854169 A

**** See image for Certificate of Correction ****

TITLE: Photocatalyst-binder compositions

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

☐ 20. Document ID: US 5849200 A

L3: Entry 20 of 23

File: USPT

Dec 15, 1998

US-PAT-NO: 5849200

DOCUMENT-IDENTIFIER: US 5849200 A

**** See image for Certificate of Correction ****

TITLE: Photocatalyst-binder compositions

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KIMC

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Terms	Documents
octakis silsesquioxane	23

US-CL-CURRENT: 95/45; 96/4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMIC

☐ 10. Document ID: US 20020143132 A1

L3: Entry 10 of 23

File: PGPB

Oct 3, 2002

PGPUB-DOCUMENT-NUMBER: 20020143132

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020143132 A1

TITLE: Silsesquioxane polymer molding and method of preparing same

PUBLICATION-DATE: October 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kobayashi, Toshiaki	Ushiku-shi		JP	
Hayashi, Teruyuki	Matsudo-shi		JP	
Tanaka, Masato	Tokyo		JP	

US-CL-CURRENT: 528/10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMIC

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Terms	Documents
octakis silsesquioxane	23

Display Format:

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[Previous Page](#)[Next Page](#)

NAME	CITY	STATE	COUNTRY	RULE-47
Yim, Jin Heong	Daejun-Shi		KR	
Lyu, Yi Yeol	Daejun-Shi		KR	
Mah, Sang Kook	Seoul		KR	
Nah, Eun Ju	Daejun-Shi		KR	
Hwang, Il Sun	Daejun-Shi		KR	
Yoon, Keun Byoung	Daejun-Shi		KR	

US-CL-CURRENT: 524/48; 257/E21.262, 257/E21.273

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 8. Document ID: US 20030054180 A1

L3: Entry 8 of 23

File: PGPB

Mar 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030054180
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030054180 A1

TITLE: Film obtained from silsesquioxane polymer and method of preparing same

PUBLICATION-DATE: March 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kobayashi, Toshiaki	Ushiku-shi		JP	
Hayashi, Teruyuki	Matsudo-shi		JP	
Tanaka, Masato	Tokyo		JP	
Yamaguchi, Kouichi	Otsu-shi		JP	

US-CL-CURRENT: 428/447

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 9. Document ID: US 20030033931 A1

L3: Entry 9 of 23

File: PGPB

Feb 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030033931
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030033931 A1

TITLE: Porous gas permeable material for gas separation

PUBLICATION-DATE: February 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Sammons, Jack	Louisville	KY	US	
Goddard, David M.	Louisville	KY	US	

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nakamura, Koichiro	Osaka-shi		JP	
Shikata, Hiroko	Osaka-shi		JP	
Yamamoto, Hiroaki	Osaka-shi		JP	

US-CL-CURRENT: 156/330; 156/310, 156/314

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 6. Document ID: US 20030078443 A1

L3: Entry 6 of 23

File: PGPB

Apr 24, 2003

PGPUB-DOCUMENT-NUMBER: 20030078443

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030078443 A1

TITLE: Polyalkylene oxide porogens having hyper-branches and low dielectric-constant insulators using them

PUBLICATION-DATE: April 24, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Lee, Changjin	Daejeon		KR	
Kang, Yongku	Daejeon		KR	
Kang, Jong Goo	Choongjoo-shi		KR	
Kim, Hee Jung	Busan		KR	
Jin, Moon Young	Daejeon		KR	
Seok, Sang Il	Daejeon		KR	
Char, Kookheon	Seoul		KR	
Chu, Sang-Hyun	Seoul		KR	

US-CL-CURRENT: 549/497; 552/115, 556/464, 568/325, 568/662

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc	Image									

☐ 7. Document ID: US 20030055134 A1

L3: Entry 7 of 23

File: PGPB

Mar 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030055134

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030055134 A1

TITLE: Composition for preparing substances having nano-pores

PUBLICATION-DATE: March 20, 2003

INVENTOR-INFORMATION:

L3: Entry 3 of 23

File: PGPB

Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030187080
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030187080 A1

TITLE: Preparation of macroreticular polymers

PUBLICATION-DATE: October 2, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Jiang, Biwang	Horsham	PA	US	
Parker, Garth Rockwood JR.	Lansdale	PA	US	

US-CL-CURRENT: 521/25; 521/30, 521/32, 521/37, 526/194

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 4. Document ID: US 20030120099 A1

L3: Entry 4 of 23

File: PGPB

Jun 26, 2003

PGPUB-DOCUMENT-NUMBER: 20030120099
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030120099 A1

TITLE: Well-defined nanosized building blocks for organic/inorganic nanocomposites

PUBLICATION-DATE: June 26, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Laine, Richard M.	Ann Arbor	MI	US	
Tamaki, Ryo	Foster City	CA	US	
Choi, Jiwon	Ann Arbor	MI	US	

US-CL-CURRENT: 556/450

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
Draw Desc	Image									

☐ 5. Document ID: US 20030116273 A1

L3: Entry 5 of 23

File: PGPB

Jun 26, 2003

PGPUB-DOCUMENT-NUMBER: 20030116273
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030116273 A1

TITLE: Method of bonding an optical part

PUBLICATION-DATE: June 26, 2003

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 21 through 23 of 23 returned.**☐ 21. Document ID: US 5616532 A

L3: Entry 21 of 23

File: USPT

Apr 1, 1997

US-PAT-NO: 5616532

DOCUMENT-IDENTIFIER: US 5616532 A

**** See image for Certificate of Correction ****

TITLE: Photocatalyst-binder compositions

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

[KVMC](#)☐ 22. Document ID: JP 2001343631 A

L3: Entry 22 of 23

File: JPAB

Dec 14, 2001

PUB-NO: JP02001343631A

DOCUMENT-IDENTIFIER: JP 2001343631 A

TITLE: LIQUID CRYSTAL DISPLAY DEVICE

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

[KVMC](#)☐ 23. Document ID: EP 1328529 A1 WO 2002100867 A1 US 20030120099 A1

L3: Entry 23 of 23

File: DWPI

Jul 23, 2003

DERWENT-ACC-NO: 2003-167391

DERWENT-WEEK: 200350

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TITLE: Functionalized silsesquioxane nanoparticle for use as luminescent nanocomposites for displays, has preset dimension and comprises silsesquioxane macromonomer containing silicon atoms and specific moieties

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 21 through 23 of 23 returned.**☐ 21. Document ID: US 5616532 A

L3: Entry 21 of 23

File: USPT

Apr 1, 1997

US-PAT-NO: 5616532

DOCUMENT-IDENTIFIER: US 5616532 A

**** See image for Certificate of Correction ****

TITLE: Photocatalyst-binder compositions

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
Draw Desc	Image										

☐ 22. Document ID: JP 2001343631 A

L3: Entry 22 of 23

File: JPAB

Dec 14, 2001

PUB-NO: JP02001343631A

DOCUMENT-IDENTIFIER: JP 2001343631 A

TITLE: LIQUID CRYSTAL DISPLAY DEVICE

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
Draw Desc	Image										

☐ 23. Document ID: EP 1328529 A1 WO 2002100867 A1 US 20030120099 A1

L3: Entry 23 of 23

File: DWPI

Jul 23, 2003

DERWENT-ACC-NO: 2003-167391

DERWENT-WEEK: 200350

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TITLE: Functionalized silsesquioxane nanoparticle for use as luminescent nanocomposites for displays, has preset dimension and comprises silsesquioxane macromonomer containing silicon atoms and specific moieties

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
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STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 108435

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From: Jan Delaval
Location: Biotech-Chem Library
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Phone: 308-4498

jan.delaval@uspto.gov

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SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: S. Kumar Examiner #: 69594 Date: 11/17/03
Art Unit: 1621 Phone Number 308 4579 Serial Number: 10/069 640
Mail Box and Bldg/Room Location: Cm 7A07 Results Format Preferred (circle): PAPER DISK E-MAIL
7E12

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Well defined nanosized building blocks for Organic/Inorganic nanocomposites
Inventors (please provide full names): Richard M. Laine et al.

Earliest Priority Filing Date: 10/29/01

****For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.***

17. (Currently Amended) A functionalized silsesquioxane nanoparticle having a maximum dimension of less than 100 nm, comprising a silsesquioxane macromonomer containing minimally 6 and preferably up to 24 silicon atoms, and comprised of in excess of 67 mol percent $\text{RSiO}_{3/2}$ moieties, wherein R is a phenyl group or a phenyl group bearing one or more reactive functional groups, or an oligomer or polymer of said macromonomer linked through Si-O-Si bonds, wherein at least one of said phenyl groups bears a reactive functional group.

C 18. (Currently Amended) The functionalized silsesquioxane of claim 17, wherein said silsesquioxane nanoparticle has a cage structure and contains 6 to 24 and preferably 8 reactive functional groups.

19. (Currently Amended) The functionalized silsesquioxane of claim 17, selected from the group consisting of octakis(aminophenyl)silsesquioxane, octakis(N-maleimidoaminophenyl)silsesquioxane, octakis(acetylphenyl)silsesquioxane, and octakis-(bromophenyl)silsesquioxane).



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➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention

Comments:

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E 7080/RID
L6 1261 S E3
L7 983 S E4,E5
L8 278 S L6 NOT L7
L9 1240 S L6-L8 NOT ION
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E TAMAKI R/AU
L37 54 S E3,E8-E13
E CHOI J/AU
L38 945 S E3-E26
E CHOI JI/AU
L39 33 S E16
E CHOI JIWON/AU
L40 19 S E3

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 L42 2 S L35 AND L36-L40
 L43 5 S L41,L42
 L44 13 S L34,L43

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 E SILSESQUIOXANE/CT
 E E39+ALL
 L51 6215 S E5,E4
 E E26+ALL
 L52 7285 S ?SILSESQUIOXAN?
 L53 7285 S L51,L52
 E NANO/CT
 E E17+ALL
 L54 78 S E3,E2+NT AND L53
 E E7+ALL
 L55 69 S E1+NT AND L53
 E PARTICLE SIZE/CT
 L56 1 S E4,E6 AND L53
 E E3+ALL
 L57 58 S E3+NT AND L53
 E E15+ALL
 L58 23 S E3+NT AND L53
 L59 211 S L54-L58
 E LAYER/CT
 E E18+ALL
 L60 29 S L59 AND ?LAYER?
 L61 499 S L53 AND ?NANO?
 L62 90 S L59,L61 AND ?LAYER?
 E ASH/CT
 E E3+ALL
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 E E3+ALL
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 L70 13 S L68,L69
 L71 89 S L62 NOT L70
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 L81 13 S L2-L6 AND L80
 L82 18 S L80,L81

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L82. ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2003:381086 HCAPLUS
DN 138:338622
TI Octa(aminophenyl)silsesquioxane as a building block for polyimide nanocomposites
AU Tamaki, R.; Choi, J.; Laine, R. M.
CS Departments of Mater. Sci. and Eng., Chem. and the Macromol. Sci. and Eng. Cent., Univ. of Michigan, Ann Arbor, MI, USA
SO Polymeric Materials Science and Engineering (2001), 84, 564-565
CODEN: PMSEDG; ISSN: 0743-0515
PB American Chemical Society
DT Journal
LA English
CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 38
AB Octa(aminophenyl)silsesquioxane was synthesized which possesses amino groups attached directly to Ph rings without aliphatic tethers. This silsesquioxane macromonomer was a precursor to various nanocomposite materials. Under nitrogen, the polyimides were stable $\leq 540^\circ$.
ST octaaminophenylsilsesquioxane pyromellitic dianhydride copolymer crosslinked thermally stable
IT Polyimides, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(Octa(aminophenyl)silsesquioxane macromonomer for polyimide)
IT Heat-resistant materials
Nanocomposites
Thermal properties
(of octa(aminophenyl)silsesquioxane-pyromellitic dianhydride polyimide)
IT 373366-43-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(Octa(aminophenyl)silsesquioxane macromonomer for polyimide)
IT 389635-56-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(model compound; Octa(aminophenyl)silsesquioxane macromonomer for polyimide)

- IT 373366-41-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and polymerization; Octa(aminophenyl)silsesquioxane
 macromonomer for polyimide)
- IT 85-44-9, Phthalic anhydride
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with octa(aminophenyl)silsesquioxane forming model
 compound)
- IT 107987-98-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reduction; Octa(aminophenyl)silsesquioxane macromonomer for
 polyimide)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Agaskar, P; Inorg Chem 1991, V30, P2707 HCAPLUS
- (2) Brown, J; J Am Chem Soc 1964, V86, P1120 HCAPLUS
- (3) Gravel, M; Appl Organometal Chem 1999, V13, P329 HCAPLUS
- (4) Hasegawa, I; Bull Chem Soc Jpn 1986, V59, P2279 HCAPLUS
- (5) Hasegawa, I; J Chem Soc, Chem Commun 1989, P208 HCAPLUS
- (6) Hasegawa, I; J Organometall Chem 1992, V441, P373 HCAPLUS
- (7) Olsson, K; Arkiv Kemi 1961, V17, P529 HCAPLUS
- (8) Sellinger, A; Chem Mater 1996, V8, P1592 HCAPLUS
- (9) Sellinger, A; Polym Prepr (Am Chem Soc, Div Polym Chem) 1995, V36(2), P282
 HCAPLUS
- (10) Zhang, C; Polym Prepr (Am Chem Soc, Div Polym Chem) 1995, V36(2), P342
 HCAPLUS

- IT 373366-43-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (Octa(aminophenyl)silsesquioxane macromonomer for polyimide)
- RN 373366-43-9 HCAPLUS
- CN 1H,3H-Benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, polymer with
 ar,ar',ar'',ar''',ar''''',ar''''',ar''''',ar''''''-
 pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
 octayloctakis[benzenamine] (9CI) (CA INDEX NAME)

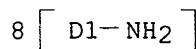
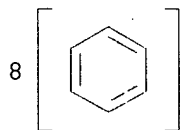
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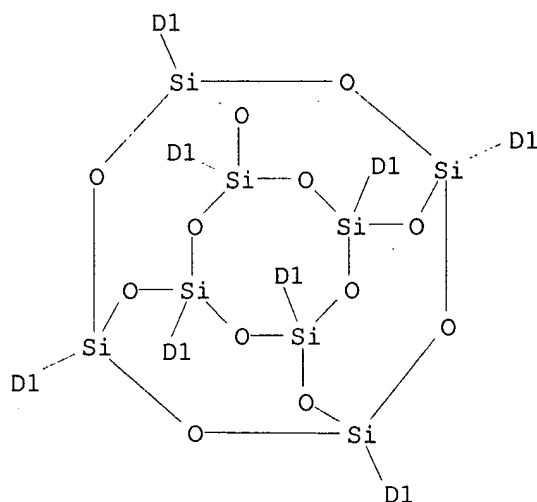
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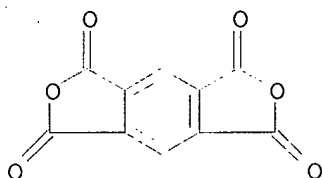


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CM 2

CRN 89-32-7
CMF C10 H2 O6



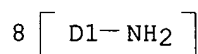
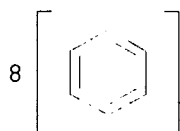
IT 389635-56-7P

RL: SPN (Synthetic preparation); PREP (Preparation)
(model compound; Octa(aminophenyl)silsesquioxane macromonomer
for polyimide)

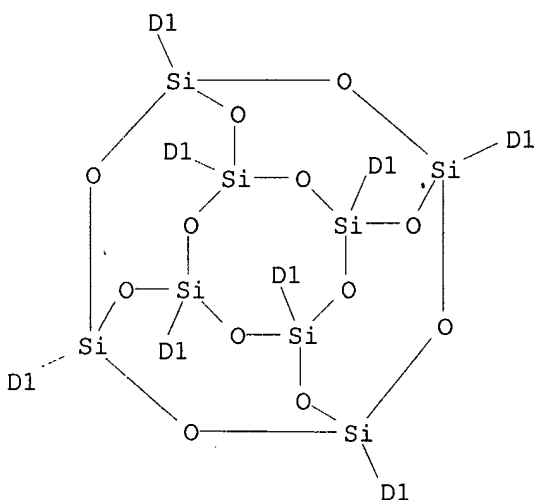
RN 389635-56-7 HCAPLUS

CN 1H-Isoindole-1,3(2H)-dione, 2,2',2'',2''',2'''',2''''',2''''',2''''''-
(pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctaphenylene)octakis- (9CI) (CA INDEX NAME)

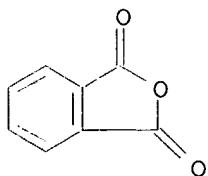
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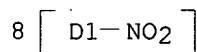
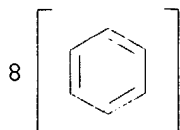


IT 85-44-9, Phthalic anhydride
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with octa(aminophenyl)silsesquioxane forming model compound)
 RN 85-44-9 HCAPLUS
 CN 1,3-Isobenzofurandione (9CI) (CA INDEX NAME)

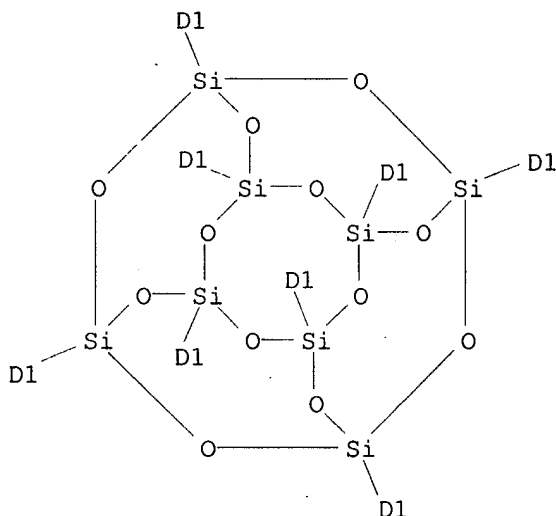


IT 107987-98-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reduction; Octa(aminophenyl)silsesquioxane macromonomer for polyimide)
 RN 107987-98-4 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(nitrophenyl)-
 (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



L82 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 2003:184311 HCAPLUS

TI Silsesquioxane nanocomposites and
phenylsilsesquioxane derivatives

AU Laine, Richard; Brick, Chad; Kim, Seung-Gyoo; Tamaki,
Ryo; Chen, Hong-Ji; Choi, J.

CS Department of Material Science and Engineering, Chemistry and
Macromolecular Science and Engineering, University of Michigan, Ann Arbor,
MI, 48109-2136, USA

SO Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United
States, March 23-27, 2003 (2003), MTLS-011 Publisher: American Chemical
Society, Washington, D. C.
CODEN: 69DSA4

DT Conference; Meeting Abstract

LA English

AB Structure-property-processing relationships in **nanocomposites**
require precise control of as many parameters as possible. We are pursuing
studies of 3-D **nanocomposites** based on octafunctional
silsesquioxanes [(RSiO)_{1.5}]₈, cubes] to establish a complete
understanding of the behavior of materials expected to offer phys.
properties nonlinearly related to the properties of the component phases.
In the studies presented here we have developed cubes with organic functional

groups (R=epoxy, functionalized Ph, etc) appended to inorg. cubes and polymerized them to give organic/inorg. **nanocomposites** wherein both components are present at the 1.apprx.2 nm scale and discontinuous. This presentation will provide an overview of properties of **nanocomposite** and phenylcube materials.

L82 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 2003:42320 HCAPLUS

DN 138:90253

TI Preparation of cage **silsesquioxanes** as photoinitiators

IN Yamahiro, Mikio; Yoshida, Kazuhiro; Yamamoto, Yasuhiro; Watanabe, Kenichi; Ootake, Nobumasa

PA Chisso Corporation, Japan

SO PCT Int. Appl., 97 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

IC ICM C08G077-392

ICS C08F004-00; C07F007-18; C08F002-46

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 28, 29, 67

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003004549	A1	20030116	WO 2002-JP6821	20020704
	W: JP, US				
PRAI	JP 2001-205173	A	20010705		
	JP 2001-223001	A	20010724		
OS	MARPAT 138:90253				
AB	Compds. (Aa)(R1)bHc[(R2R3SiO)eSiO ₃ /2] _{2n} [A = group having ability to initiate polymerization of monomer, preferably a group bearing haloalkylphenyl, MgBr or dithiocarbamate group; R1 = C2-10 alkyl; R2, R3 = C1-8 alkyl, Ph, cyclohexyl; n = 2-30; e = 0, 1; a = an integer of 1 to 2n; b, c = an integer of 0 to (2n-1), where a + b + c = 2n] useful for manufacture of hybrid organic-inorg. materials are prepared Thus, a solution containing 0.2 g octakis[(N,N-diethyldithiocarbamoylmethyl)phenylethyl] octasilsesquioxane , 15.1 mL Me methacrylate, 32.7 mL PhMe, and 2.5 mL decane was irradiated by UV for 30 min to give a polymer having Mw 15,000, Mn 6200, Tg 110°, and decomposition temperature 288°.				
ST	cage silsesquioxane dithiocarbamate photoinitiator prepn; methyl methacrylate photoinitiator cage silsesquioxane				
IT	Polymerization catalysts (photopolymn.; preparation of cage silsesquioxanes as photoinitiators)				
IT	Hybrid organic-inorganic materials (preparation of cage silsesquioxanes as photoinitiators)				
IT	Silsesquioxanes RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses) (preparation of cage silsesquioxanes as photoinitiators)				
IT	485381-57-5P 485381-62-2P RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses) (preparation of cage silsesquioxanes as photoinitiators)				
IT	9011-14-7P, PMMA RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (preparation of cage silsesquioxanes as photoinitiators)				
IT	281-50-5P, Hydrogenoctasilsesquioxane 357933-28-9P 485381-54-2P RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (preparation of cage silsesquioxanes as photoinitiators)				
IT	148-18-5, Sodium N,N-diethyldithiocarbamate 10025-78-2, Trichlorosilane				

30030-25-2 125756-69-6, Octakis(dimethylsiloxyl)
octasilsesquioxane

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of cage silsesquioxanes as photoinitiators)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Battelle Memorial Institute; US 5997961 A 1999 HCAPLUS
- (2) Loctite Corp; EP 161830 A1 1985 HCAPLUS
- (3) Loctite Corp; US 4507187 A 1985 HCAPLUS
- (4) Loctite Corp; JP 60-233104 A 1985 HCAPLUS
- (5) Minnesota Mining And Manufacturing Co; JP 03-97735 A 1991 HCAPLUS
- (6) Minnesota Mining And Manufacturing Co; EP 413550 A2 1991 HCAPLUS
- (7) Minnesota Mining And Manufacturing Co; US 5057619 A 1991 HCAPLUS
- (8) Minnesota Mining And Manufacturing Co; US 5200436 A 1991 HCAPLUS
- (9) Mitsubishi Petrochemical Co Ltd; JP 02-228326 A 1990 HCAPLUS
- (10) Mitsubishi Petrochemical Co Ltd; EP 386615 A2 1990 HCAPLUS
- (11) Mitsubishi Petrochemical Co Ltd; US 5071936 A 1990 HCAPLUS
- (12) Mitsubishi Petrochemical Co Ltd; JP 05-105711 A 1993 HCAPLUS
- (13) Nippon Telegraph And Telephone Corp; JP 60-220341 A 1985 HCAPLUS
- (14) Showa Denko Kabushiki Kaisha; JP 08-92374 A 1996 HCAPLUS
- (15) Union Carbide Corp; DE 2152275 A 1972 HCAPLUS
- (16) Union Carbide Corp; US 3719650 A 1972 HCAPLUS
- (17) Union Carbide Corp; US 3772349 A 1972 HCAPLUS
- (18) Union Carbide Corp; JP 47-8517 A 1972

IT 485381-57-5P 485381-62-2P

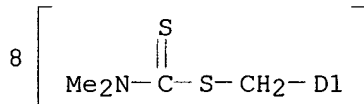
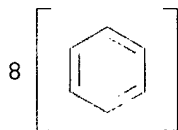
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)

(preparation of cage silsesquioxanes as photoinitiators)

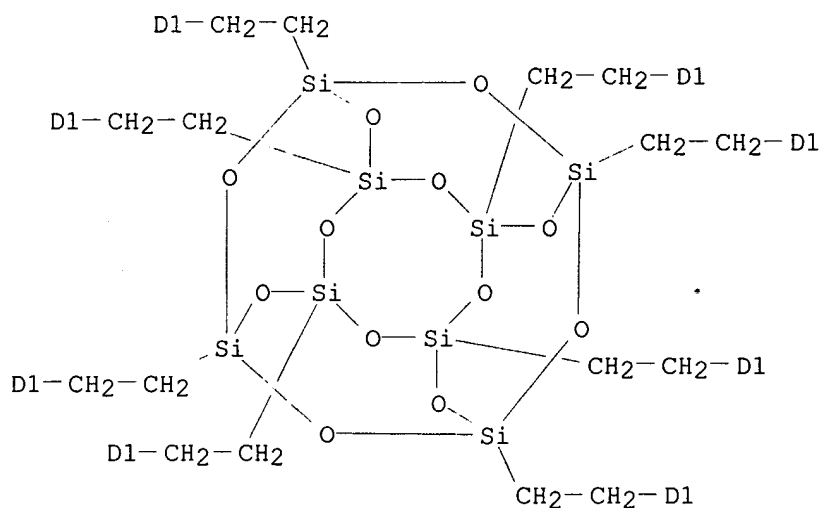
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CN Carbamodithioic acid, dimethyl-, pentacyclo[9.5.1.13,9.15,15.17,13]octasil
oxane-1,3,5,7,9,11,13,15-octayloctakis(2,1-ethanediyphenylenemethylene)
ester (9CI) (CA INDEX NAME)

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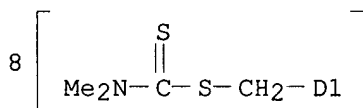
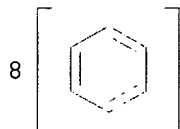


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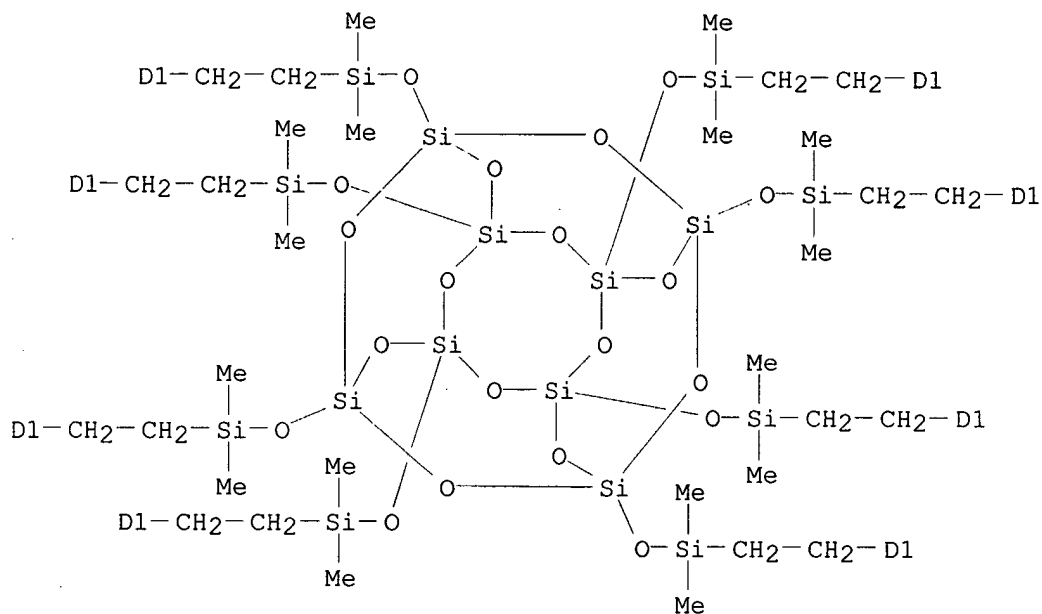


RN 485381-62-2 HCAPLUS
 CN Carbamodithioic acid, dimethyl-, pentacyclo[9.5.1.13,9.15,15.17,13]octasil
 oxane-1,3,5,7,9,11,13,15-octayloctakis[oxy(dimethylsilylene)-2,1-
 ethanediylphenylenemethylene] ester (9CI) (CA INDEX NAME)

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IT 281-50-5P, Hydrogenoctasilsesquioxane

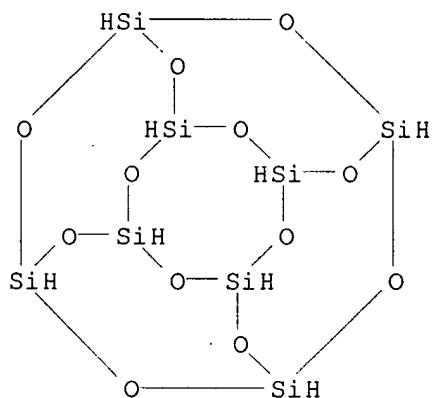
357933-28-9P 485381-54-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(preparation of cage silsesquioxanes as photoinitiators)

RN 281-50-5 HCAPLUS

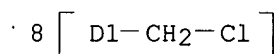
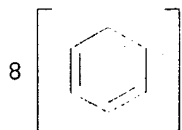
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane (6CI, 8CI, 9CI) (CA INDEX NAME)



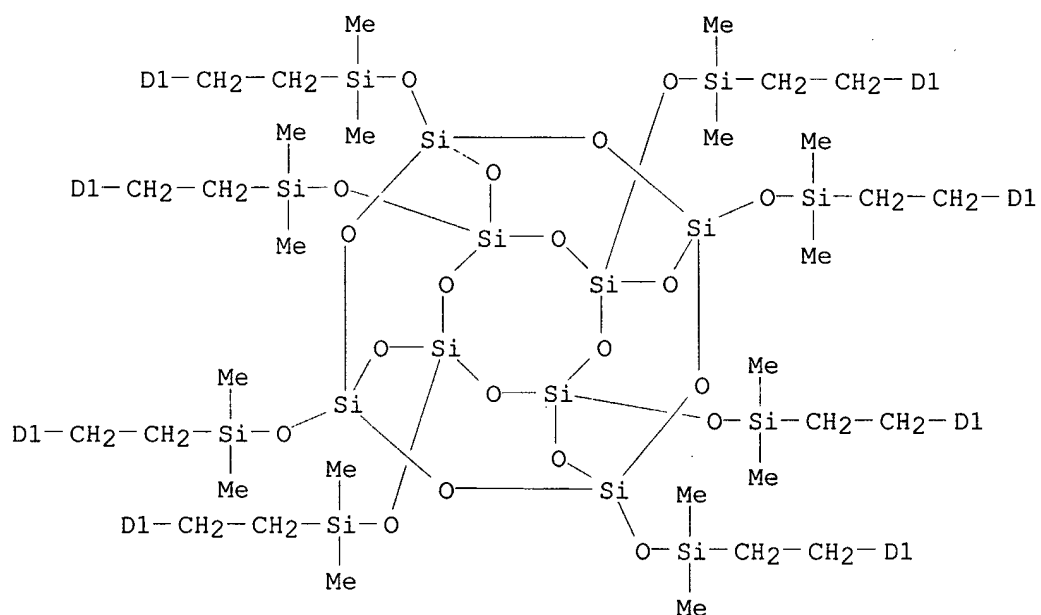
RN 357933-28-9 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis[[[2-[(chloromethyl)phenyl]ethyl]dimethylsilyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A

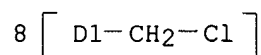
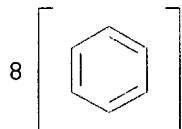


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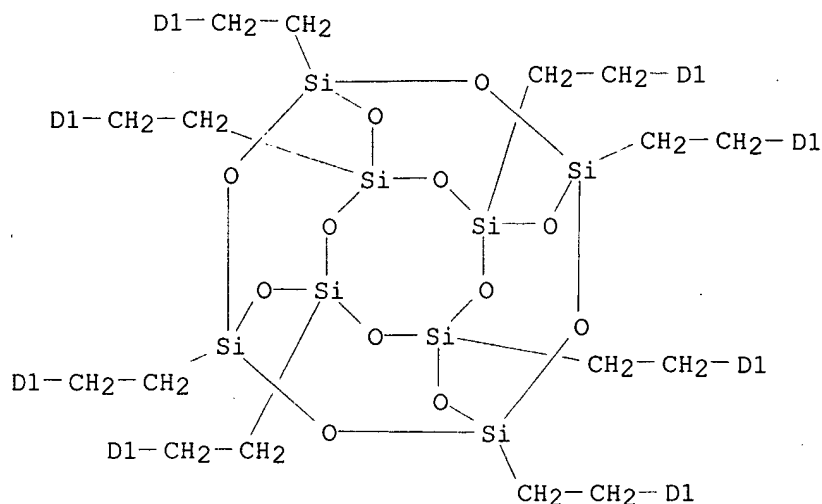


RN 485381-54-2 HCAPLUS
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 [(chloromethyl)phenyl]ethyl]- (9CI) (CA INDEX NAME)

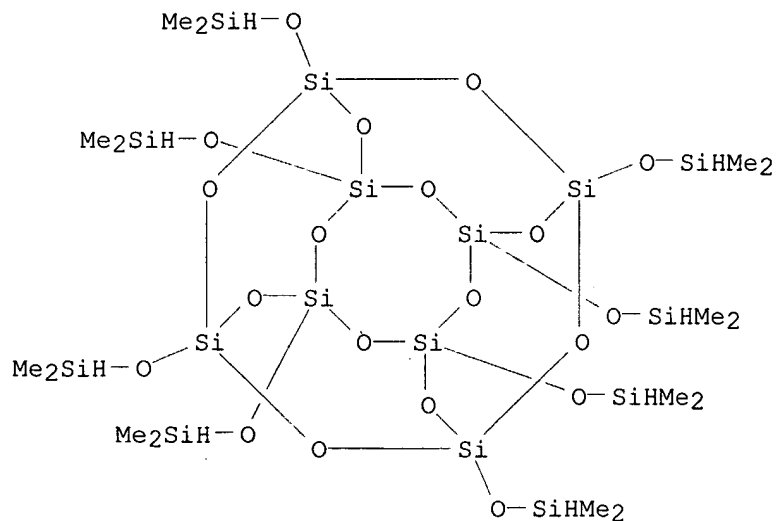
PAGE 1-A



PAGE 2-A



IT 125756-69-6, Octakis(dimethylsiloxy)octasilsesquioxane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of cage silsesquioxanes as photoinitiators)
 RN 125756-69-6 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane,
 octakis[(dimethylsilyl)oxy]- (9CI) (CA INDEX NAME)



L82 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 2003:39360 HCAPLUS
 DN 138:222163
 TI A Polyimide Nanocomposite from Octa(aminophenyl)
 silsesquioxane
 AU Tamaki, Ryo; Choi, Jiwon; Laine, Richard M.
 CS Department of Materials Science and Engineering and the Macromolecular
 Science and Engineering Center, University of Michigan, Ann Arbor, MI,
 48109-2136, USA
 SO Chemistry of Materials (2003), 15(3), 793-797

CODEN: CMATEX; ISSN: 0897-4756

PB American Chemical Society

DT Journal

LA English

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 35

AB **Octaaminophenylsilsesquioxane** (OAPS) can serve as a **nanosized** building block for the construction of materials with **nanometer** control of the periodicity of the organic and inorg. components and bonding between components. We describe here the synthesis of a prototypical three-dimensional polyimide by reaction of OAPS with pyromellitic dianhydride (PMDA). Model studies with phthalic anhydride provided useful cure conditions. Thus, stoichiometrically correct OAPS/PMDA **nanocomposites** were obtained following curing of NMP and DMF reaction solns. at lower temps. and then to >350 °C/N₂ under vacuum. The resulting materials offer thermal stabilities in air and N₂ of >500 °C (5% mass loss temperature) and char yields >75%/N₂. X-ray powder patterns indicate that the resulting materials are completely amorphous, as might be expected from the extreme rigidity of the organic tethers linking cube vertexes that will prevent long-range ordering from occurring during curing. These materials hold promise for high compressive strength applications.

ST **octaaminophenylsilsesquioxane** pyromellitic dianhydride polyimide **nanocomposite** synthesis thermal property

IT Crosslinking

Polymer chains

Thermal stability

(of polyimide **nanocomposite** from octa(aminophenyl)
silsesquioxane)

IT Solvent effect

(on properties of polyimide **nanocomposite** from
octa(aminophenyl)**silsesquioxane**)

IT Hybrid organic-inorganic materials

Nanocomposites

(polyimide **nanocomposite** from octa(aminophenyl)
silsesquioxane)

IT **Silsesquioxanes**

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide-; polyimide **nanocomposite** from octa(aminophenyl)
silsesquioxane)

IT Polyimides, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(**silsesquioxane**-; polyimide **nanocomposite** from
octa(aminophenyl)**silsesquioxane**)

IT 389635-56-7P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(model compound; polyimide **nanocomposite** from octa(aminophenyl)
silsesquioxane)

IT 373366-41-7

RL: RCT (Reactant); RACT (Reactant or reagent)
(monomer; reaction with phthalic anhydride in synthesis of model
compound, or in polymerization with pyromellitic dianhydride)

IT 373366-43-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide **nanocomposite** from octa(aminophenyl)
silsesquioxane)

IT 85-44-9, Phthalic anhydride

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with octa(aminophenyl)**silsesquioxane** in synthesis
of model compound)

IT 68-12-2, DMF, uses 872-50-4, NMP, uses

RL: NUU (Other use, unclassified); USES (Uses)
(solvent effect on polyimide **nanocomposite** from

octa(aminophenyl)silsesquioxane)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
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- (33) Zheng, L; Macromolecules 2002, V35, P2375 HCAPLUS

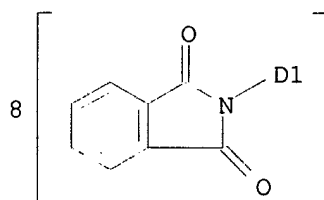
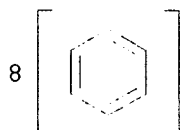
IT 389635-56-7P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(model compound; polyimide nanocomposite from octa(aminophenyl)
silsesquioxane)

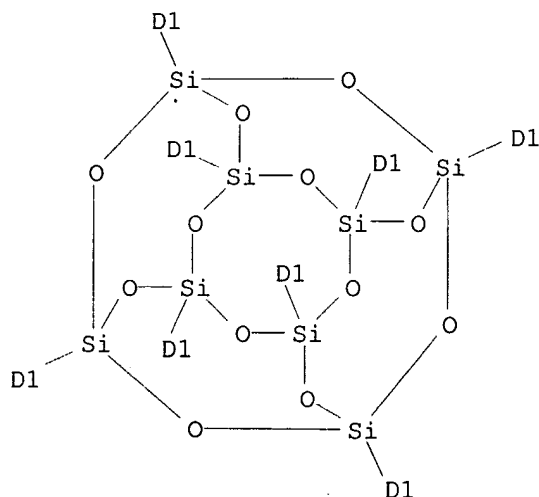
RN 389635-56-7 HCAPLUS

CN 1H-Isoindole-1,3(2H)-dione, 2,2',2'',2''',2''''',2''''',2''''''',2''''''''-
(pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctaphenylene)octakis- (9CI) (CA INDEX NAME)

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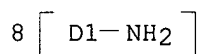
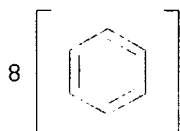


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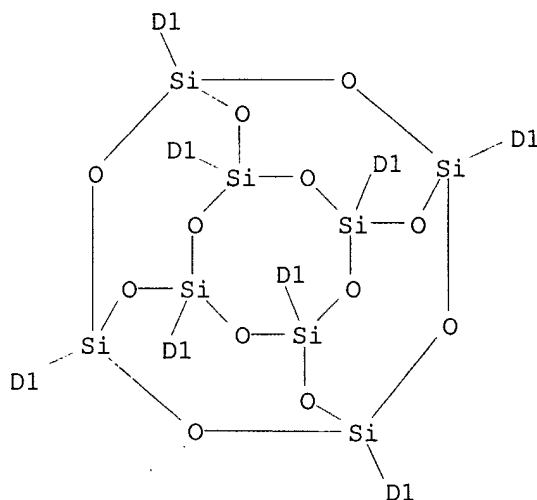
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        RL: RCT (Reactant); RACT (Reactant or reagent)
            (monomer; reaction with phthalic anhydride in synthesis of model
            compound, or in polymerization with pyromellitic dianhydride)
RN      373366-41-7  HCAPLUS
CN      Benzenamine, ar,ar',ar'',ar''',ar''''',ar''''''',ar''''''''-
        pentacyclo[9.5.1.13.9.15.15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
        octayloctakis- (9CI)  (CA INDEX NAME)

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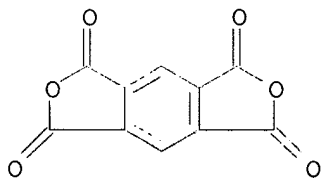


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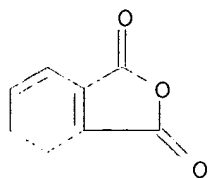


CM 2

CRN 89-32-7
CMF C10 H2 O6



IT 85-44-9, Phthalic anhydride
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with octa(aminophenyl)silsesquioxane in synthesis
 of model compound)
 RN 85-44-9 HCAPLUS
 CN 1,3-Isobenzofurandione (9CI) (CA INDEX NAME)



L82 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 2002:964363 HCAPLUS

DN 138:39736

TI **Nanosized silsesquioxane building blocks for organic/inorganic nanocomposites**

IN **Laine, Richard M.; Tamaki, Ryo; Choi, Jiwon**

PA The Regents of the University of Michigan, USA

SO PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07F007-21

CC 35-6 (Chemistry of Synthetic High Polymers)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002100867	A1	20021219	WO 2001-US48451	20011029 <--
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	RW:			GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG	
	EP 1328529	A1	20030723	EP 2001-274149	20011029 <--
	R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR	
	US 2003120099	A1	20030626	US 2002-69640	20020506 <--
PRAI	US 2000-244099P	P	20001027 <--		
	WO 2001-US48451	W	20011029 <--		

AB Functionalized **silsesquioxanes** containing from 6 to 24 silicon atoms and minimally about 67 mol percent $\text{RSiO}_{3/2}$ moieties where R is a Ph group bearing a chemical reactive functional group are highly suitable for use as **nanoparticles** in producing highly ordered **nanocomposites** of many types, containing a high proportion of interphase. The **nanocomposites** have unusual physicochem. properties due to the use of uniform, highly functionalized **nanoparticles**.

ST **silsesquioxane nanocomposite**

IT **Ashes (residues)**

(fly, silica source; **nanosized silsesquioxane building blocks for organic/inorg. nanocomposites**)

IT **Silsesquioxanes**

RL: TEM (Technical or engineered material use); USES (Uses)

(**nanoparticle; nanosized silsesquioxane building blocks for organic/inorg. nanocomposites**)

IT **Monolayers**

Nanocomposites

(**nanosized silsesquioxane building blocks for organic/inorg. nanocomposites**)

IT Epoxy resins, uses

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(reaction products with **aminosilsesquioxanes**,
nanocomposites; **nanosized silsesquioxane**
building blocks for organic/inorg. **nanocomposites**)

IT **Ashes (residues)**

(**rice husk**, silica source; **nanosized**
silsesquioxane building blocks for organic/inorg.
nanocomposites)

IT **89-32-7D**, Pyromellitic Dianhydride, reaction products with
aminosilsesquioxanes 1675-54-3D, Bisphenol A diglycidyl
ether, reaction products with **aminosilsesquioxanes**

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(**nanocomposites**; **nanosized silsesquioxane**
building blocks for organic/inorg. **nanocomposites**)

IT **2421-28-5D**, Benzophenonetetracarboxylic dianhydride, reaction
products with **aminosilsesquioxanes**

RL: RCT (Reactant); RACT (Reactant or reagent)

(**nanocomposites**; **nanosized silsesquioxane**
building blocks for organic/inorg. **nanocomposites**)

IT **125756-69-6 126503-69-3**

RL: TEM (Technical or engineered material use); USES (Uses)

(**nanocomposites**; **nanosized silsesquioxane**
building blocks for organic/inorg. **nanocomposites**)

IT **373366-41-7P 478921-68-5P**

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(**nanoparticle**; **nanosized silsesquioxane**
building blocks for organic/inorg. **nanocomposites**)

IT **389635-57-8 478921-65-2**

RL: TEM (Technical or engineered material use); USES (Uses)

(**nanoparticle**; **nanosized silsesquioxane**
building blocks for organic/inorg. **nanocomposites**)

IT **373366-41-7DP**, N-Ph **389635-56-7P**

RL: IMF (Industrial manufacture); PREP (Preparation)

(**nanosized silsesquioxane** building blocks for
organic/inorg. **nanocomposites**)

IT **51350-55-1DP**, Polyphenylsilsesquioxane, nitrated

136864-48-7P 157374-41-9DP, nitrated

389635-60-3P 478921-70-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)

(**nanosized silsesquioxane** building blocks for
organic/inorg. **nanocomposites**)

IT **85-44-9D**, Phthalic anhydride, reaction products with

aminosilsesquioxanes 5256-79-1, Octa(phenyl)
silsesquioxane

RL: RCT (Reactant); RACT (Reactant or reagent)

(**nanosized silsesquioxane** building blocks for
organic/inorg. **nanocomposites**)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

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Accession No 2001:640153 2001

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(5) Tunney, S; US 5384376 A 2002 HCAPLUS

IT **89-32-7D**, Pyromellitic Dianhydride, reaction products with
aminosilsesquioxanes 1675-54-3D, Bisphenol A diglycidyl

ether, reaction products with **aminosilsesquioxanes**

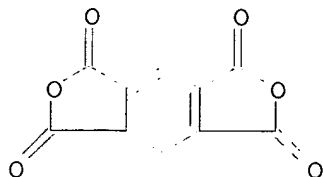
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(**nanocomposites; nanosized silsesquioxane**

building blocks for organic/inorg. **nanocomposites**)

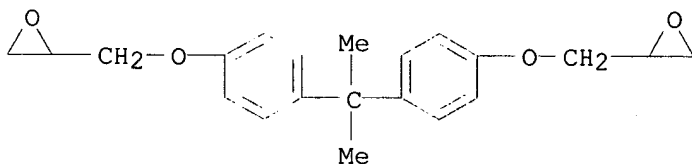
RN 89-32-7 HCAPLUS

CN 1H,3H-Benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone (9CI) (CA INDEX NAME)



RN 1675-54-3 HCAPLUS

CN Oxirane, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis- (9CI) (CA INDEX NAME)



IT **2421-28-5D**, Benzophenonetetracarboxylic dianhydride, reaction products with **aminosilsesquioxanes**

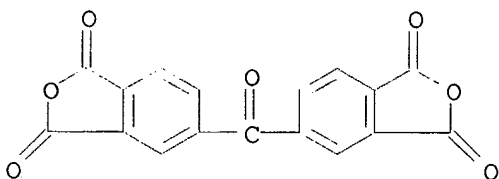
RL: RCT (Reactant); RACT (Reactant or reagent)

(**nanocomposites; nanosized silsesquioxane**

building blocks for organic/inorg. **nanocomposites**)

RN 2421-28-5 HCAPLUS

CN 1,3-Isobenzofurandione, 5,5'-carbonylbis- (9CI) (CA INDEX NAME)



IT **125756-69-6 126503-69-3**

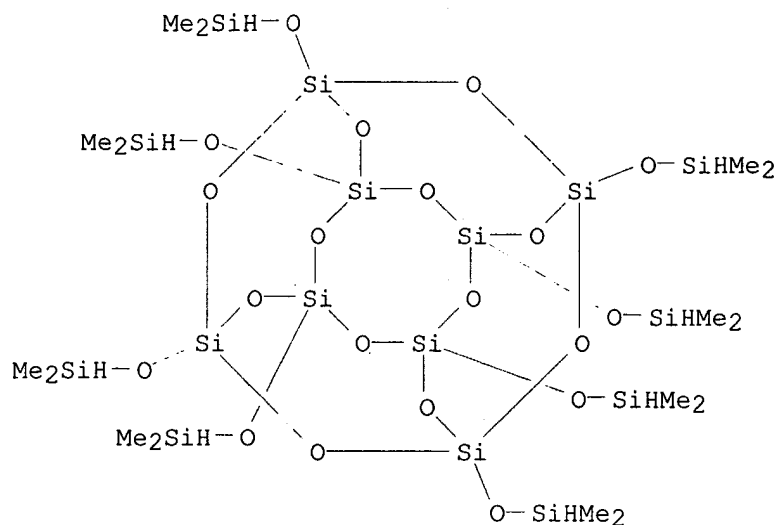
RL: TEM (Technical or engineered material use); USES (Uses)

(**nanocomposites; nanosized silsesquioxane**

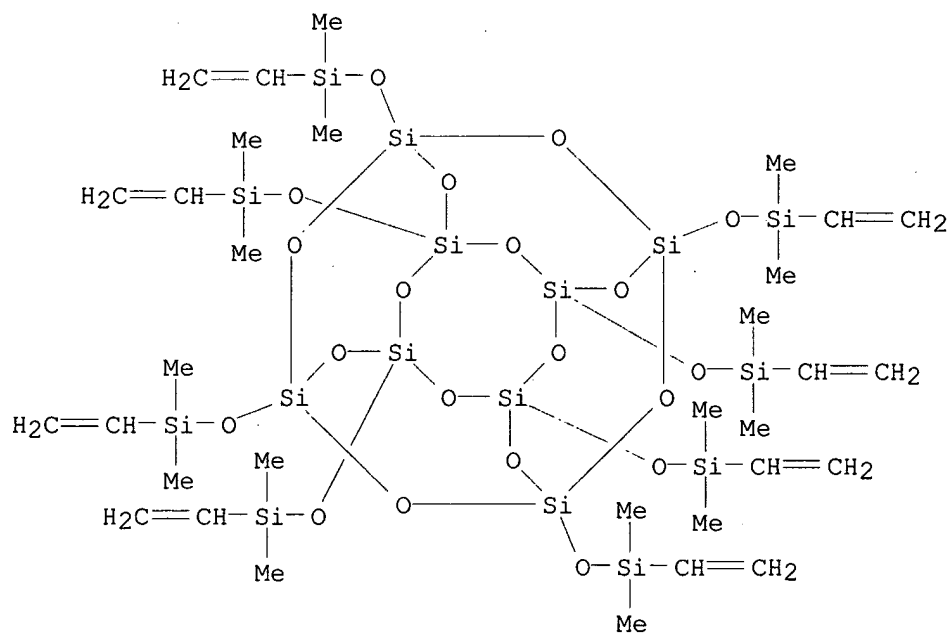
building blocks for organic/inorg. **nanocomposites**)

RN 125756-69-6 HCAPLUS

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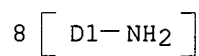
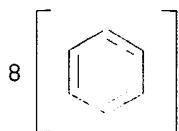


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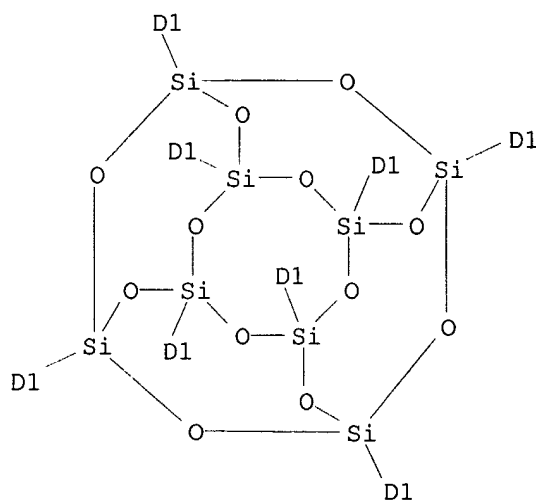


IT 373366-41-7P 478921-68-5P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (nanoparticle; nanosized silsesquioxane
 building blocks for organic/inorg. nanocomposites)
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 CN Benzenamine, ar, ar', ar'', ar''', ar''', ar''', ar''', ar''', ar''', ar''',
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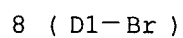
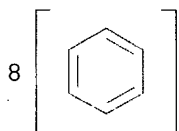


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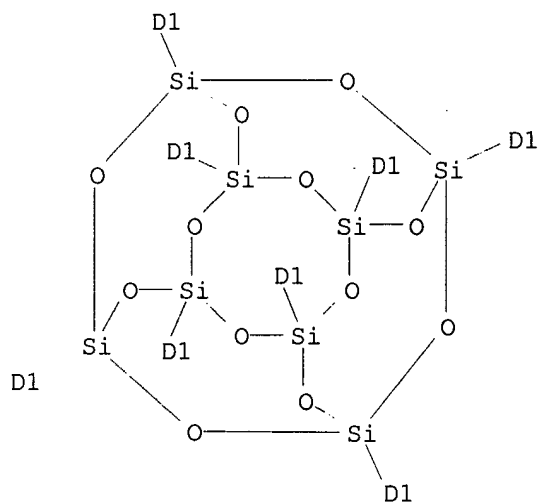


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 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, 1,3,5,7,9,11,13,15-octakis(bromophenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A

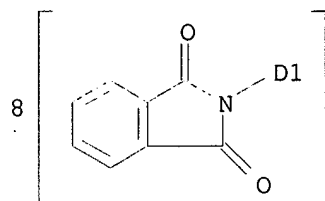
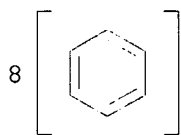


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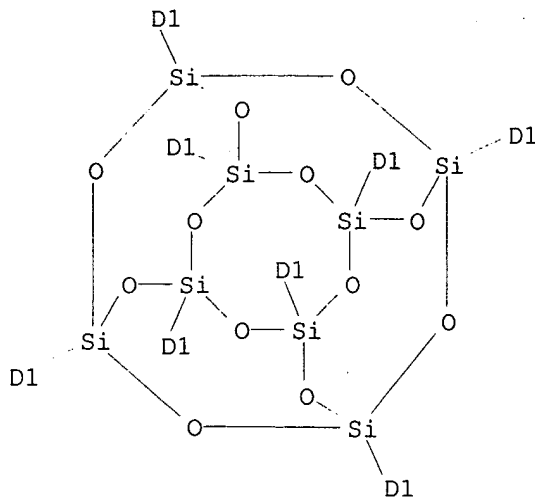


RN 389635-56-7 HCAPLUS
 CN 1H-Isoindole-1,3(2H)-dione, 2,2',2'',2''',2'''',2''''',2''''',2''''''-
 (pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
 octayloctaphenylene)octakis- (9CI) (CA INDEX NAME)

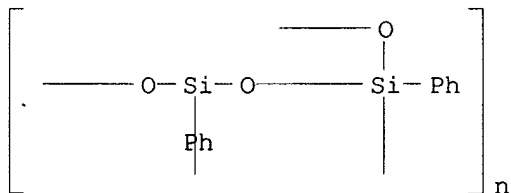
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PAGE 2-A

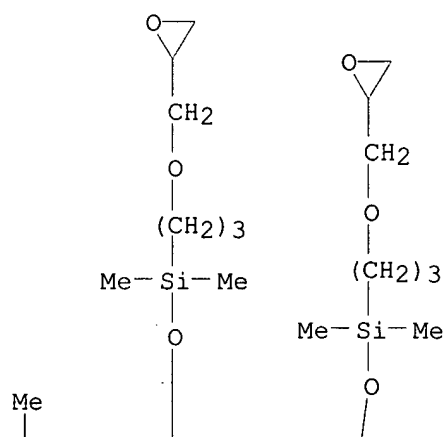


IT 51350-55-1DP, Polyphenylsilsesquioxane, nitrated
 136864-48-7P 157374-41-9DP, nitrated
 389635-60-3P 478921-70-9P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (nanosized silsesquioxane building blocks for
 organic/inorg. nanocomposites)
 RN 51350-55-1 HCAPLUS
 CN Poly[(1,3-diphenyl-1,3:1,3-disiloxanediylidene)-1,3-bis(oxy)] (9CI) (CA
 INDEX NAME)

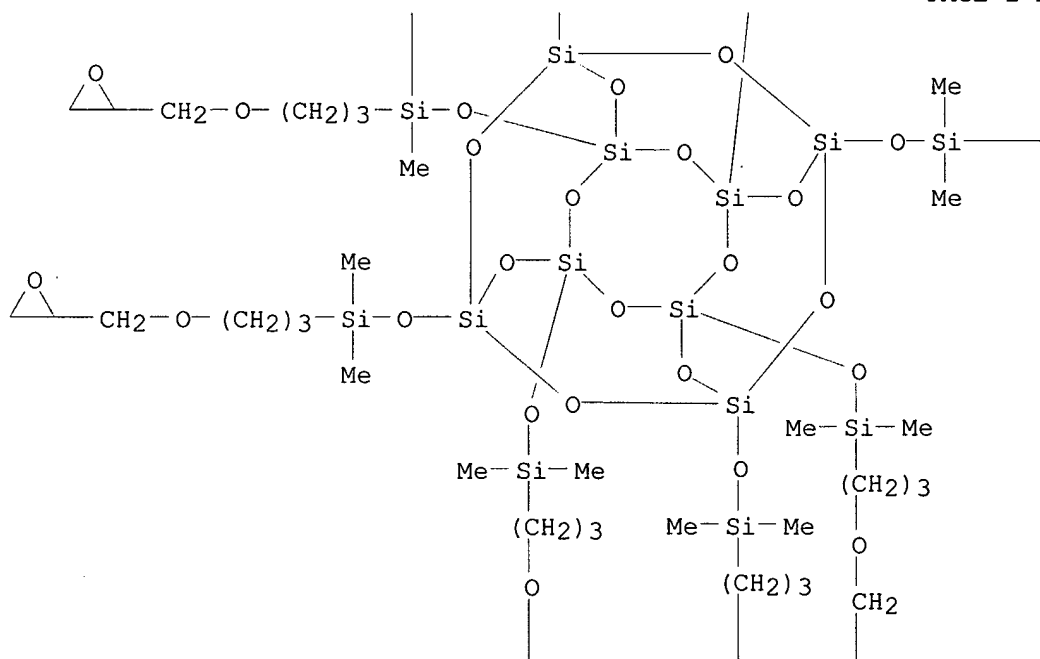


RN 136864-48-7 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis[[dimethyl[3-(oxiranylmethoxy)propyl]silyl]oxy]- (9CI) (CA INDEX NAME)

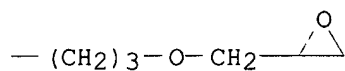
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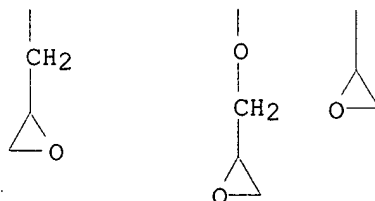
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PAGE 2-B



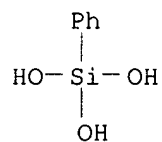
PAGE 3-A



RN 157374-41-9 HCAPLUS
 CN Silanetriol, phenyl-, homopolymer (9CI) (CA INDEX NAME)

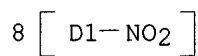
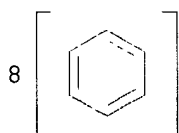
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CRN 3047-74-3
 CMF C6 H8 O3 Si

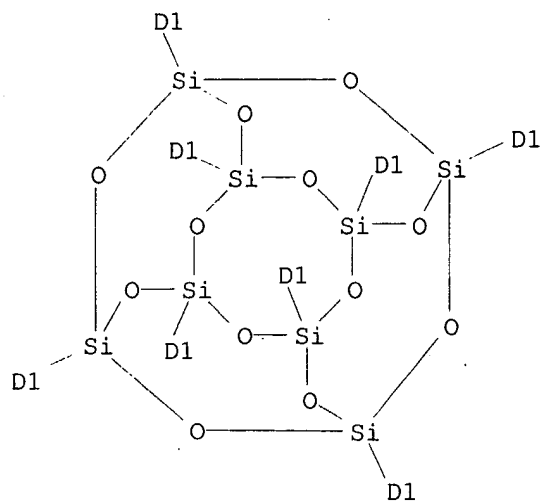


RN 389635-60-3 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis[3(or 4)-nitrophenyl]- (9CI) (CA INDEX NAME)

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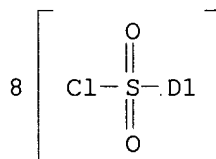
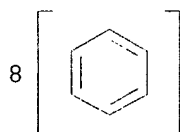


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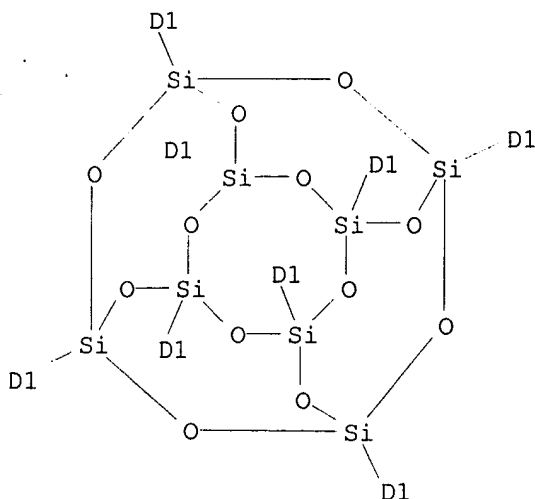


RN 478921-70-9 HCAPLUS
 CN Benzenesulfonyl chloride, pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-octayloctakis- (9CI) (CA INDEX NAME)

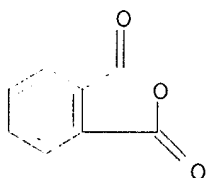
PAGE 1-A



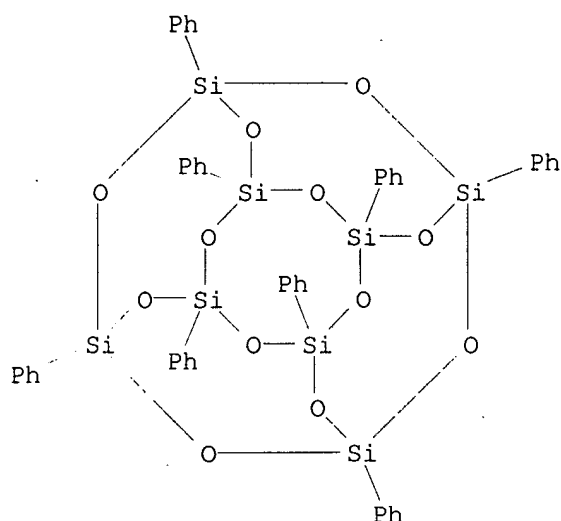
PAGE 2-A



IT 85-44-9D, Phthalic anhydride, reaction products with
 aminosilsesquioxanes 5256-79-1, Octa(phenyl)
 silsesquioxane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (nanosized silsesquioxane building blocks for
 organic/inorg. nanocomposites)
 RN 85-44-9 HCAPLUS
 CN 1,3-Isobenzofurandione (9CI) (CA INDEX NAME)



RN 5256-79-1 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octaphenyl- (7CI, 8CI,
 9CI) (CA INDEX NAME)



- L82 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 2001:821878 HCAPLUS
 DN 136:102768
 TI Octa(aminophenyl)silsesquioxane as a Nanoconstruction Site
 AU Tamaki, Ryo; Tanaka, Yasuyuki; Asuncion, Michael Z.; Choi, Jiwon; Laine, Richard M.
 CS Department of Materials Science and Engineering Macromolecular Science and Engineering Center, University of Michigan, Ann Arbor, MI, 48109-2136, USA
 SO Journal of the American Chemical Society (2001), 123(49), 12416-12417
 CODEN: JACSAT; ISSN: 0002-7863
 PB American Chemical Society
 DT Journal
 LA English
 CC 35-8 (Chemistry of Synthetic High Polymers)
 AB Synthesis of octa(aminophenyl)silsesquioxane (OAPS), an aromatic amine-functionalized silsesquioxane from aliphatic components was reported. OAPS is easily prepared in two steps by nitration of octaphenylsilsesquioxane (OPS) in fuming nitric acid to form octa(nitrophenyl)silsesquioxane (ONPS), followed by mild reduction Octa(phthalimidephenyl)silsesquioxane (OPIPS), octa(maleimidephenyl)silsesquioxane (OMIPS) and N-fluorene-OAPS (OFPS) were prepared
 ST cubic silsesquioxane aminophenyl nitrophenyl phthalimidephenyl maleimidephenyl prepn
 IT Nitration
 Reduction
 (in preparation of octa(aminophenyl)silsesquioxane as a nanoconstruction site)
 IT Hybrid organic-inorganic materials
 Nanocomposites
 (preparation of octa(aminophenyl)silsesquioxane as a nanoconstruction site)
 IT Silsesquioxanes
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation of octa(aminophenyl)silsesquioxane as a nanoconstruction site)
 IT 74-88-4, Methyl iodide, reactions 85-44-9, Phthalic anhydride 108-31-6, Maleic anhydride, reactions 1121-60-4, 2-Pyridinecarboxaldehyde 1133-80-8, 2-Bromofluorene 5256-79-1
 RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation of octa(aminophenyl)silsesquioxane as a
nanoconstruction site)

IT 28320-31-2P, 2-Bromo-9,9-dimethylfluorene 373366-41-7P
389635-60-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(in preparation of octa(aminophenyl)silsesquioxane as a
nanoconstruction site)

IT 8007-58-7, Fuming nitric acid
RL: RGT (Reagent); RACT (Reactant or reagent)
(in preparation of octa(aminophenyl)silsesquioxane as a
nanoconstruction site)

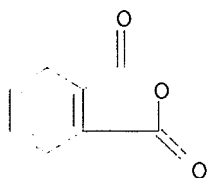
IT 389635-56-7P 389635-57-8P 389635-58-9P
389635-59-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of octa(aminophenyl)silsesquioxane as a
nanoconstruction site)

RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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HCAPLUS
(23) Lichtenhan, J; Macromolecules 1995, V28, P8435 HCAPLUS
(24) Olsson, K; Arkiv Kemi 1961, V17, P529 HCAPLUS
(25) Sellinger, A; Chem Mater 1996, V8, P1592 HCAPLUS
(26) Sellinger, A; J Polym Sci, Part A: Polym Chem 1994, V32, P3069 HCAPLUS
(27) Sellinger, A; Macromolecules 1996, V29, P2327 HCAPLUS
(28) Tamaki, R; Abstracts of Papers, 221st National Meeting of the American
Chemical Society, PMSE 312 2001
(29) White, J; J Appl Polym Sci 1984, V29, P891 HCAPLUS
(30) Winpenny, R; Chem Soc Rev 1998, V27, P447 HCAPLUS
(31) Wolfe, J; J Org Chem 2000, V65, P1158 HCAPLUS
(32) Yoshida, N; J Chem Soc, Perkin Trans 1999, V2, P975
(33) Zhang, C; J Am Chem Soc 1998, V120, P8380 HCAPLUS
(34) Zhang, C; J Am Chem Soc 2000, V122, P6979 HCAPLUS

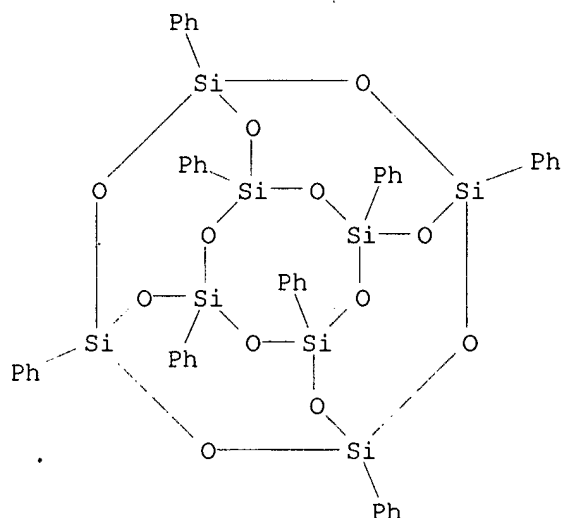
IT 85-44-9, Phthalic anhydride 5256-79-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of octa(aminophenyl)silsesquioxane as a
nanoconstruction site)

RN 85-44-9 HCAPLUS
CN 1,3-Isobenzofurandione (9CI) (CA INDEX NAME)



RN 5256-79-1 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octaphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 373366-41-7P 389635-60-3P

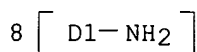
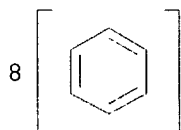
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in preparation of octa(aminophenyl)silsesquioxane as a nanoconstruction site)

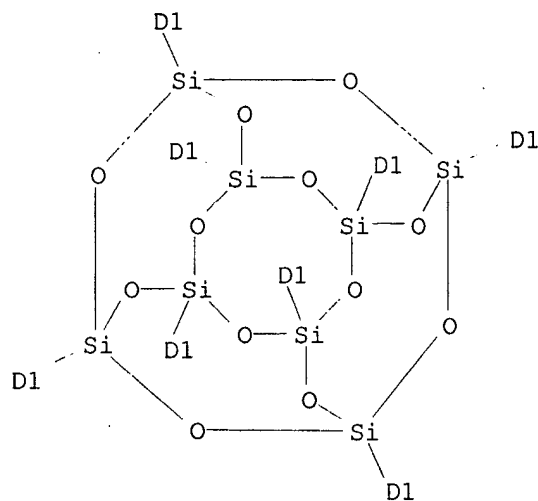
RN 373366-41-7 HCAPLUS

CN Benzenamine, ar,ar',ar'',ar''',ar'''',ar''''',ar''''''',ar''''''''-
pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctakis- (9CI) (CA INDEX NAME)

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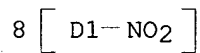
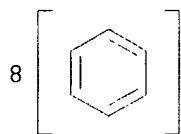


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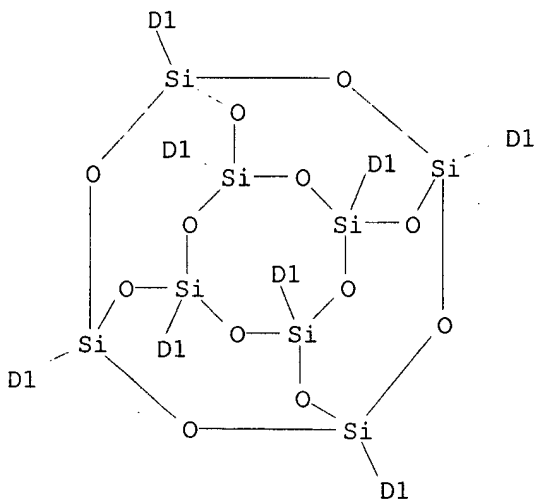


RN 389635-60-3 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis[3(or
 4)-nitrophenyl]- (9CI) (CA INDEX NAME)

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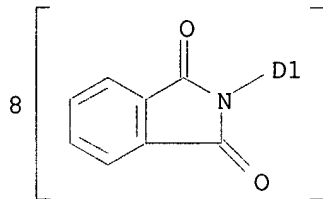
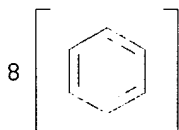
IT 389635-56-7P 389635-57-8P 389635-58-9P
389635-59-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of octa(aminophenyl)silsesquioxane as a
nanoconstruction site)

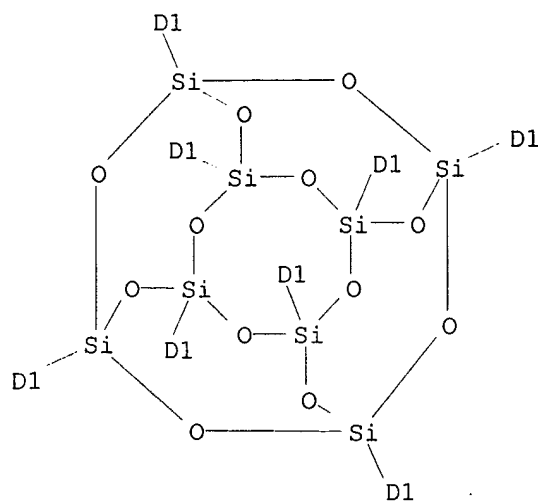
RN 389635-56-7 HCAPLUS

CN 1H-Isoindole-1,3(2H)-dione, 2,2',2'',2''',2'''',2''''',2''''',2''''''-
(pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctaphenylene)octakis- (9CI) (CA INDEX NAME)

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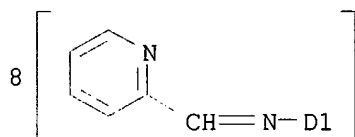
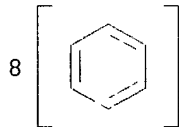


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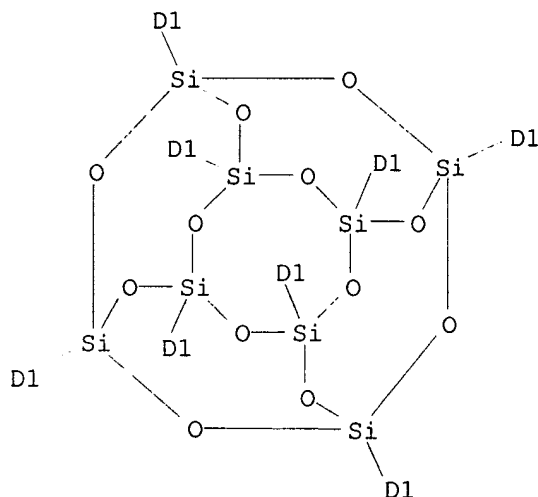


RN 389635-59-0 HCAPLUS
 CN Benzenamine, pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-
 1,3,5,7,9,11,13,15-octayloctakis[N-(2-pyridinylmethylene)- (9CI) (CA
 INDEX NAME)

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L82 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 2001:661930 HCAPLUS
 DN 135:358558
 TI High temperature organic/inorganic **nanocomposites** from cubic
silsesquioxanes
 AU Laine, R. M.; Choi, J.; Tamaki, R.; Kim,
 S-G.
 CS Departments of Materials Science and Eng. and the Macromolecular Science
 and Eng. Center, University of Michigan, Ann Arbor, MI, USA
 SO Polymer Preprints (American Chemical Society, Division of Polymer
 Chemistry) (2001), 42(2), 61-62
 CODEN: ACPPAY; ISSN: 0032-3934
 PB American Chemical Society, Division of Polymer Chemistry
 DT Journal; (computer optical disk)
 LA English
 CC 37-5 (Plastics Manufacture and Processing)
 AB Cube **nanocomposites** based on **octaaminophenylsilsesquioxane***
****** , [[**(RSiO)1.5**]8, cubes] and octaglycidyl epoxide functionalized cubes
 were developed. The functionalized aromatic *****silsesquioxane**
nanocomposites exhibit **nanoporosity**, good-to-excellent
 mech. strength, and high thermal stability.
 ST **octaaminophenylsilsesquioxane** cube functionalized
silsesquioxane nanocomposite; octaglycidyl epoxide
silsesquioxane cube **nanocomposite** thermal stability;
 porosity mech strength functionalized cube **silsesquioxane**
nanocomposite
 IT Crosslinking
 Hybrid organic-inorganic materials
Nanocomposites
 Porosity
 Thermal stability
 Yield strength
 (mech. strength and porosity and thermal stability of high temperature
 organic/inorg. **nanocomposites** from cubic
octaaminophenylsilsesquioxanes)
 IT **Silsesquioxanes**
 RL: PRP (Properties)
 (mech. strength and porosity and thermal stability of high temperature
 organic/inorg. **nanocomposites** from cubic
octaaminophenylsilsesquioxanes)

IT **Silsesquioxanes**
 RL: PRP (Properties)
 (polyimide-; mech. strength and porosity and thermal stability of high temperature organic/inorg. **nanocomposites** from cubic **octaaminophenylsilsesquioxanes**)

IT Polyimides, properties
 RL: PRP (Properties)
 (**silsesquioxane**-; mech. strength and porosity and thermal stability of high temperature organic/inorg. **nanocomposites** from cubic **octaaminophenylsilsesquioxanes**)

IT Mechanical loss
 (tan δ ; mech. strength and porosity and thermal stability of high temperature organic/inorg. **nanocomposites** from cubic **octaaminophenylsilsesquioxanes**)

IT **373366-43-9 373366-45-1**
 RL: PRP (Properties)
 (mech. strength and porosity and thermal stability of high temperature organic/inorg. **nanocomposites** from cubic **octaaminophenylsilsesquioxanes**)

IT **373366-41-7**
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
 (**octaaminophenylsilsesquioxane**; mech. strength and porosity and thermal stability of high temperature organic/inorg. **nanocomposites** from cubic **octaaminophenylsilsesquioxanes**)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
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 (2) Laine, R; Adv Mater impress
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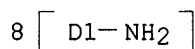
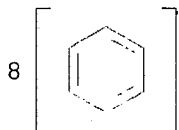
IT **373366-43-9 373366-45-1**
 RL: PRP (Properties)
 (mech. strength and porosity and thermal stability of high temperature organic/inorg. **nanocomposites** from cubic **octaaminophenylsilsesquioxanes**)

RN 373366-43-9 HCAPLUS
 CN 1H,3H-Benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, polymer with ar,ar',ar'',ar''',ar''''',ar''''',ar''''',ar''''''-pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-octayloctakis[benzenamine] (9CI) (CA INDEX NAME)

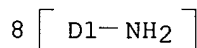
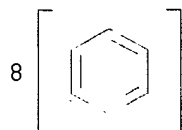
CM 1

CRN 373366-41-7
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 CCI IDS

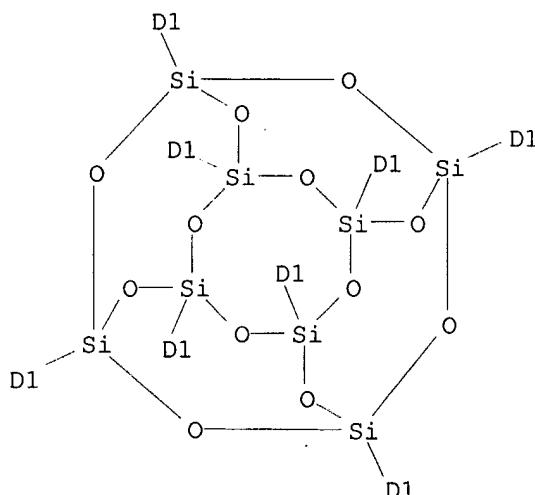
PAGE 1-A



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- L82 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 2001:640153 HCAPLUS
 TI Octa(aminophenyl)silsesquioxane as a new platform for nanocomposites
 AU Tamaki, Ryo; Tanaka, Yasuyuki; Asuncion, Michael Z.; Brick, Chad; Choi, Jiwon; Kim, Seung-Gyoo; Park, Kyeong-Won; Laine, Richard M.
 CS Department of Materials Science and Engineering, University of Michigan, Ann Arbor, MI, 48109, USA
 SO Abstracts of Papers, 222nd ACS National Meeting, Chicago, IL, United States, August 26-30, 2001 (2001), MTLS-021 Publisher: American Chemical Society, Washington, D. C.
 CODEN: 69BUZP
 DT Conference; Meeting Abstract
 LA English
 AB Octa(aminophenyl)silsesquioxane (OAPS) is synthesized from octaphenyl-silsesquioxane (OPS) via nitration followed by facile reduction by using hydrogen transfer methods. The obtained cubic silsesquioxane possesses eight aminophenyl (anilino) groups (meta:para 1:1) attached directly to the silsesquioxane core. The amine functionality is readily transformed to phthalimide, maleimide, triarylamine, or imine moieties and imide resins. The spherical nature,

octafunctionality, lack of aliphatic groups and well-defined 1.3-1.5 nm diameter cores suggest that these materials offer exceptional potential as **nanosized** building blocks for constructing **nanocomposites** with improved mech. properties with excellent high temperature stability. For example, the polyimide resin exhibited the excellent thermal properties. The aniline moieties suggest access to star or dendrimer-like conducting polymers, and various materials for photonic applications.

L82 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 2001:640139 HCAPLUS

TI Functionalized phenyl **silsesquioxanes** as components in novel **nanocomposite** materials

AU Laine, Richard M.; Tamaki, Ryo; Choi, Jiwon;
Brick, Chad; Kim, S-G.; Park, H.

CS Materials Science and Engineering, University of Michigan, Ann Arbor, MI,
48109-2136, USA

SO Abstracts of Papers, 222nd ACS National Meeting, Chicago, IL, United
States, August 26-30, 2001 (2001), MTL5-007 Publisher: American Chemical
Society, Washington, D. C.
CODEN: 69BUZP

DT Conference; Meeting Abstract

LA English

AB We report here the synthesis of octa(Xphenyl)**octasilsesquioxanes** (X=NH₂, Br, acetyl, etc) and their use as a building blocks for preparing a variety of **nanocomposites** for structural applications. These octafunctional **silsesquioxanes** offer access to high crosslink d. thermoset **nanocomposites** wherein the dimensions of the organic and inorg. phases are at the 1-2 nm length scales and very well defined. High crosslinking d. coupled with an inorg. core is expected to provide high thermal stability and good mech. strength. Some microporosity created for the more rigidly linked materials offers the opportunity to form materials of potential value in catalyst applications and electronics packaging. Other materials offer potential for novel matrixes for light-weight/high strength composite materials.

L82 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 2001:354309 HCAPLUS

DN 134:356349

TI Structural evolution of **silsesquioxane**-based organic/inorganic **nanocomposite** networks

AU Soles, Christopher L.; Lin, Eric K.; Wu, Wen-Li; Zhang, Chunxin;
Laine, Richard M.

CS Polymers Division, NIST, Gaithersburg, MD, 20899-8541, USA

SO Materials Research Society Symposium Proceedings (2001),
628(Organic/Inorganic Hybrid Materials), CC4.2.1-CC4.2.6
CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal

LA English

CC 57-1 (Ceramics)

Section cross-reference(s): 38

AB The basic tetrahedra of silica are readily assembled into eight cornered cages known as cubic **silsesquioxanes** ([RSiO_{1.5}]₈). **Silsesquioxane** cubes represent one of the smallest possible units of ceramic silica. The corners of these **nanometer**-sized ceramic cubes are readily functionalized with reactive groups and incorporated into organic polymers. In this work, we characterize the structures that result from varying the length of the flexible organic segments used to connect the cubes in a series of hybrid network materials. For very short organic segments, steric hindrances inhibit high degrees of network conversion and the resulting network is very inhomogeneous. As the length of the flexible organic segment increases, the added degrees of freedom allow

a more "ordered" glassy material to evolve. If the length of the organic segment becomes very long in comparison to the size of the cube, a disordered polymer-like network is obtained.

ST **silsesquioxane** hybrid org inorg **nanocomposite** network structure

IT **Silsesquioxanes**

RL: PEP (Physical, engineering or chemical process); PROC (Process) (**nanocomposite** networks; structural evolution of **silsesquioxane**-based hybrid organic-inorg. **nanocomposite** networks)

IT Silica gel, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process) (organically modified, **nanocomposite** networks; structural evolution of **silsesquioxane**-based hybrid organic-inorg. **nanocomposite** networks)

IT Hybrid organic-inorganic materials

Nanocomposites

Polymer networks

(**silsesquioxane**-based; structural evolution of **silsesquioxane**-based hybrid organic-inorg. **nanocomposite** networks)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Beck, N; Polymer 1999, V40, P4603
- (2) Mather, P; Macromolecules 1999, V32, P1194 HCAPLUS
- (3) Pethrick, R; Prog Polym Sci 1997, V22, P1 HCAPLUS
- (4) Romo-Uribe, A; J Polym Sci: Part B: Polym Phys 1998, V36, P1857 HCAPLUS
- (5) Zhang, C; J Am Chem Soc 1998, V120, P8380 HCAPLUS
- (6) Zhang, C; PhD thesis, University of Michigan 1999

L82 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 2001:204014 HCAPLUS

TI Octa(aminophenyl)**silsesquioxane** as a building block for polyimide **nanocomposites**

AU Tamaki, Ryo; Choi, Jiwon; Laine, Richard

CS Department of Materials Science and Engineering, University of Michigan, Ann Arbor, MI, 48109, USA

SO Abstracts of Papers - American Chemical Society (2001), 221st, PMSE-312 CODEN: ACSRAL; ISSN: 0065-7727

PB American Chemical Society

DT Journal; Meeting Abstract

LA English

AB We report here the synthesis of octa(aminophenyl)**silsesquioxane** (OAPS) and its use as building blocks for preparing various amides and imide **nanocomposites**. OAPS is a cubic **silsesquioxane** containing eight aminophenyl (aniline) groups, one at each corner of the cube, which should provide high crosslinking d. for thermoset materials. High crosslinking d. coupled with an inorg. core is expected to provide high thermal stability and good mech. strength. The absence of aliphatic groups could also contribute to improved thermal and mech. properties. Reaction with pyromellitic anhydride followed by curing at temps. above 300--C provides good control of the imidization process leading to materials with a 5 % mass loss at 540 --C and at 76 wt % char yield at 1000 --C/N2.

L82 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 2001:115153 HCAPLUS

DN 134:179001

TI Process for the formation of polyhedral oligomeric **silsesquioxanes**

IN Lichtenhan, Joseph D.; Schwab, Joseph J.; Reinert, William; Carr, Michael J.; An, Yi-zong; Feher, Frank J.; Terroba, Rachel

PA Hybrid Plastics, USA

SO PCT Int. Appl., 45 pp.

CODEN: PIXXD2

DT Patent
 LA English
 IC ICM C07F007-08
 ICS C08G077-06
 CC 35-7 (Chemistry of Synthetic High Polymers)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001010871	A1	20010215	WO 2000-US21455	20000803
	W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	EP 1208105	A1	20020529	EP 2000-952570	20000803
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL			
	JP 2003510337	T2	20030318	JP 2001-526838	20000803
PRAI	US 1999-147435P	P	19990804		
	WO 2000-US21455	W	20000803		

AB Three processes for the manufacture of polyhedral oligomeric **silsesquioxanes** (POSS) which utilize the action of bases that are capable of either attacking silicon or any compound that can react with a protic solvent (e.g., ROH, H₂O etc.) and generate hydroxide [OH]⁻; alkoxide [RO]⁻, etc. The first process utilizes such bases to effectively redistribute the silicon-oxygen frameworks in polymeric **silsesquioxanes** [RSiO_{1.5}]_{inf} where inf = 1-1,000,000 or higher into POSS **nanostructures** of formulas [(RSiO_{1.5})_n]_Σ[#], homoleptic, [(RXSiO_{1.5})_n]_Σ[#], functionalized homoleptic, [(RSiO_{1.5})_m(R'SiO_{1.5})_n]_Σ[#], heteroleptic, {(RSiO_{1.5})_m(RXSiO_{1.0})_n]_Σ[#], and functionalized heteroleptic **nanostructures**. The second process utilizes base to aid in the formation of POSS **nanostructures** of formulas [(RSiO_{1.5})_n]_Σ[#], homoleptic and [(RSiO_{1.5})_m(R'SiO_{1.5})_n]_Σ[#], heteroleptic and [(RSiO_{1.5})_m(RXSiO_{1.0})_n]_Σ[#], functionalized heteroleptic **nanostructures** from silanes RSiX₃ and linear or cyclic **silsesquioxanes** of the formula RX₂Si-(OSiRX)_m-OSiRX₂ where m=0-10, X=OH, Cl, Br, I, alkoxide OR, acetate OOCR, peroxide OOR, amine NR₂, isocyanate NCO, and R. The third process utilizes base to selectively ring-open the silicon-oxygen-silicon (Si-O-Si) bonds in POSS structures to form POSS species with incompletely condensed **nanostructures**. These processes also afford stereochem. control over X. The three processes result in new POSS species that can undergo addnl. chemical manipulations to ultimately be converted into POSS-species suitable for polymerization, grafting, or other desirable chemical reactions.

ST **nanostructure** POSS siloxane **silsesquioxane** oligomer manuf; polyhedral **silsesquioxane** oligomer manuf; cage polymer **silsesquioxane** oligomer POSS

IT Bases, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalyst; process for formation of polyhedral oligomeric **silsesquioxanes**)

IT **Silsesquioxanes**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant; process for formation of polyhedral oligomeric **silsesquioxanes**)

IT 75-59-2, Tetramethylammonium hydroxide 100-85-6, Trimethylbenzylammonium hydroxide 1310-58-3, Potassium hydroxide, uses
 RL: CAT (Catalyst use); USES (Uses)

(catalyst; process for formation of polyhedral oligomeric silsesquioxanes)

IT 160511-97-7P, Phenyltrichlorosilane hydrolytic homopolymer
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (intermediate; process for formation of polyhedral oligomeric silsesquioxanes)

IT 3809-28-7P 17865-85-9P 18971-70-5P
 75899-36-4P 149311-20-6P 154346-59-5P 183387-28-2P
 254747-22-3P 307531-90-4P 307531-92-6P 326621-03-8P
 326621-04-9P 326621-05-0P 326621-06-1P 326621-07-2P 326621-08-3P
 326621-09-4P 326621-10-7P 326621-11-8P 326621-12-9P
 326621-13-0P 326621-14-1P 326621-15-2P 326621-16-3P 326621-17-4P
 326621-18-5P 326621-19-6P 326621-20-9P 326621-21-0P 326621-22-1P
 326621-23-2P 326864-50-0P 326865-04-7P 326865-07-0P
 326865-09-2P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (process for formation of polyhedral oligomeric silsesquioxanes)

IT 5256-79-1P, Octa(phenylsilsesquioxane) 18923-59-6P
 19086-35-2P 47904-22-3P 69655-76-1P, Octa(vinylsilsesquioxane) 85233-78-9P 92888-99-8P
 119329-56-5P 221326-46-1P 230316-02-6P
 268202-73-9P 308103-65-3P 326620-92-2P
 326620-98-8P 326620-99-9P 326621-00-5P
 326864-92-0P 326864-95-3P
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (process for formation of polyhedral oligomeric silsesquioxanes)

IT 2768-02-7, Vinyltrimethoxysilane 100691-57-4 226726-51-8
 326621-24-3 326621-25-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant for cross reaction or rearrangement reaction; process for formation of polyhedral oligomeric silsesquioxanes)

IT 75-77-4, reactions 556-67-2 1719-58-0, Vinyltrimethylchlorosilane
 7351-61-3 18301-56-9 198570-38-6 326865-15-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant for cross reaction; process for formation of polyhedral oligomeric silsesquioxanes)

IT 18395-30-7, Isobutyltrimethoxysilane 180537-00-2 326865-12-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant; process for formation of polyhedral oligomeric silsesquioxanes)

IT 31451-78-2 157374-41-9, Phenylsilanetriol homopolymer
 326620-90-0 326620-91-1 326620-93-3 326620-94-4 326620-95-5
 326620-97-7
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
 (starting substrate; process for formation of polyhedral oligomeric silsesquioxanes)

IT 3325-29-9 25498-03-7, Methyltrimethoxysilane homopolymer 33293-03-7
 326620-96-6 326621-02-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (starting substrate; process for formation of polyhedral oligomeric silsesquioxanes)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Lichtenhan; US 5484867 A 1996 HCAPLUS
 (2) Lichtenhan; US 5942638 A 1999 HCAPLUS
 (3) Lichtenhan; US 6100417 A 2000 HCAPLUS

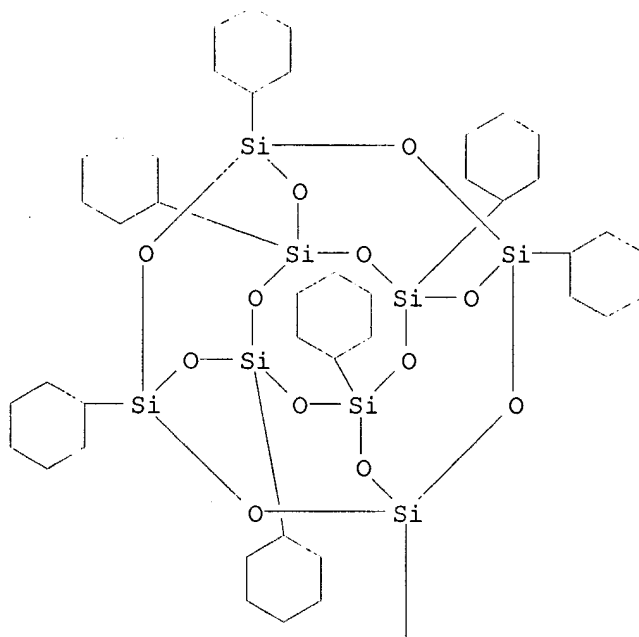
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 149311-20-6P 154346-59-5P 326621-03-8P
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RL: IMF (Industrial manufacture); PREP (Preparation)
(process for formation of polyhedral oligomeric silsesquioxanes)

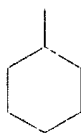
RN 3809-28-7 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octacyclohexyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

PAGE 1-A

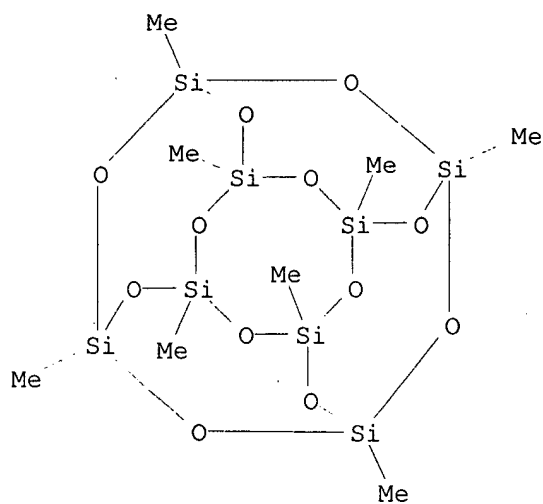


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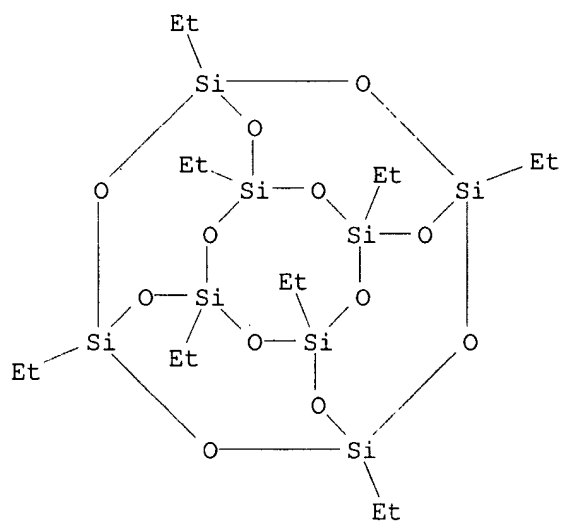


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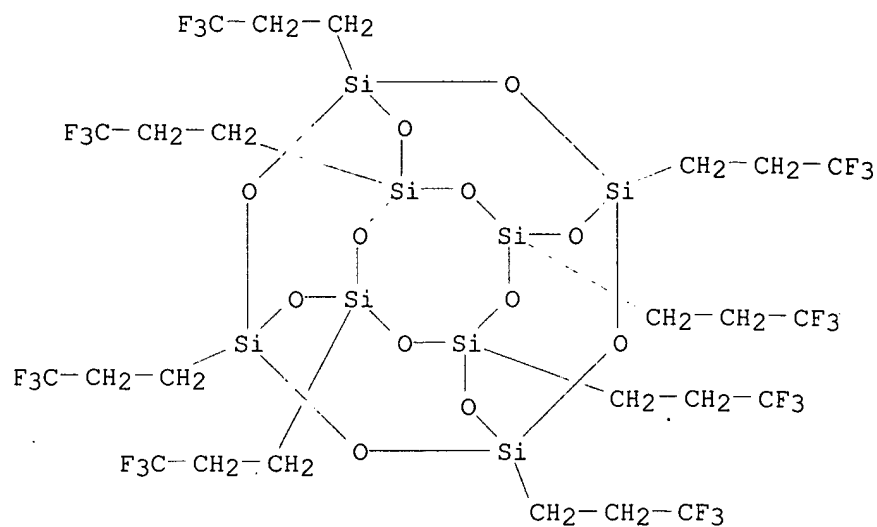
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(CA INDEX NAME)



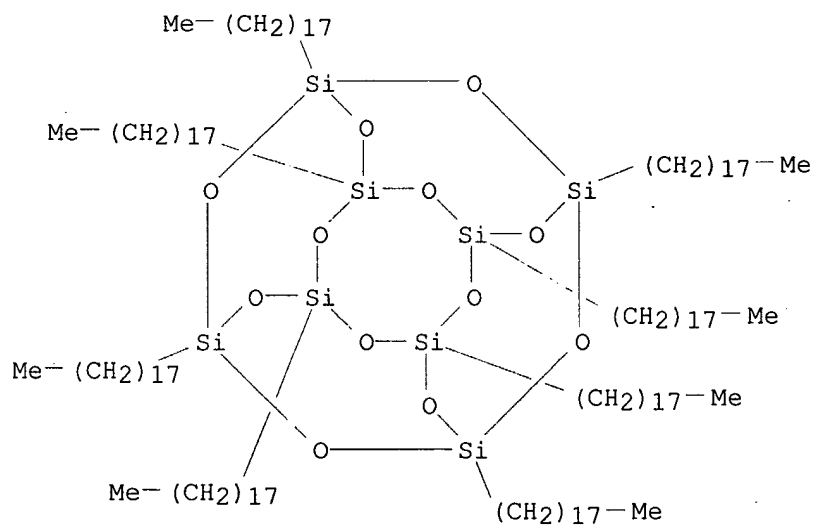
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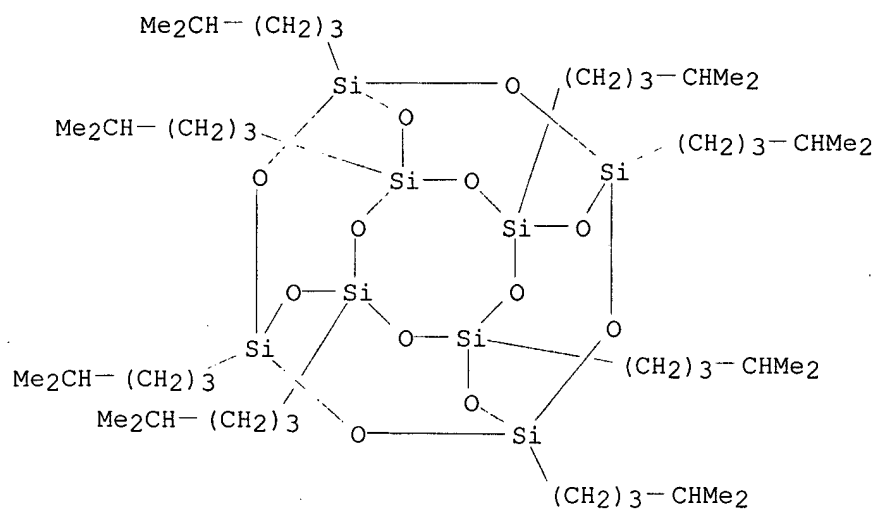
RN 149311-20-6 HCAPLUS
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RN 154346-59-5 HCAPLUS
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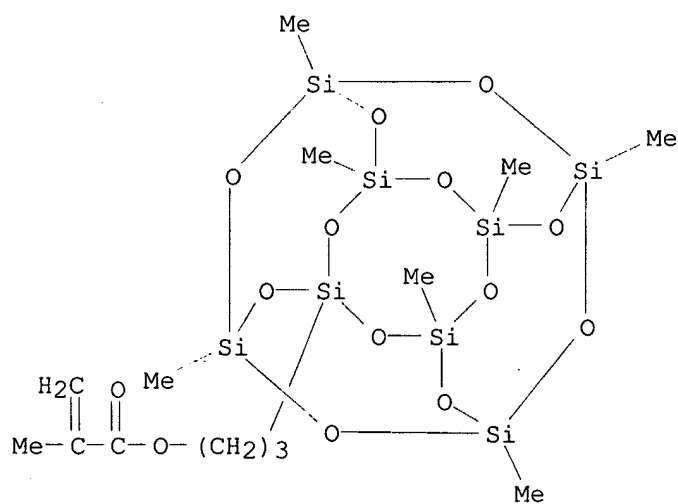


RN 326621-03-8 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-methylpentyl)- (9CI) (CA INDEX NAME)



RN 326621-10-7 HCAPLUS

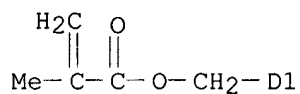
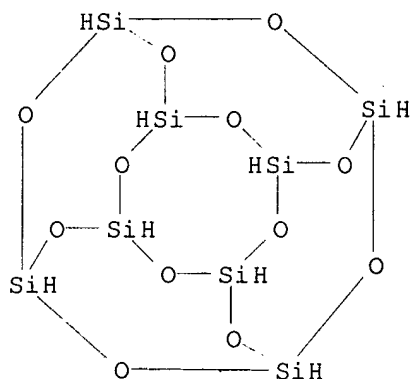
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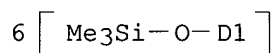
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PAGE 1-A

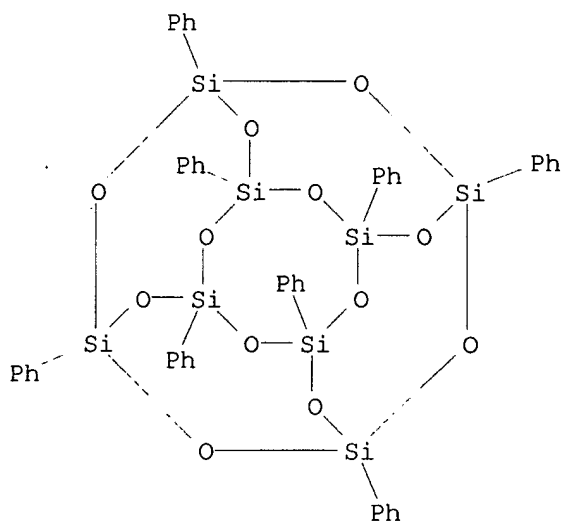


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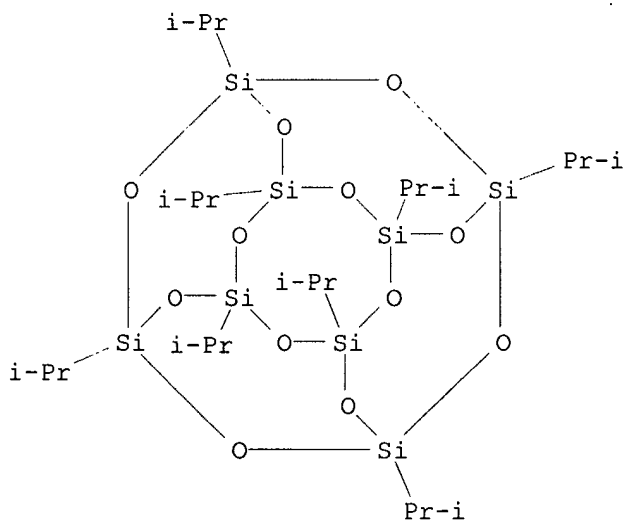


D1- Ph

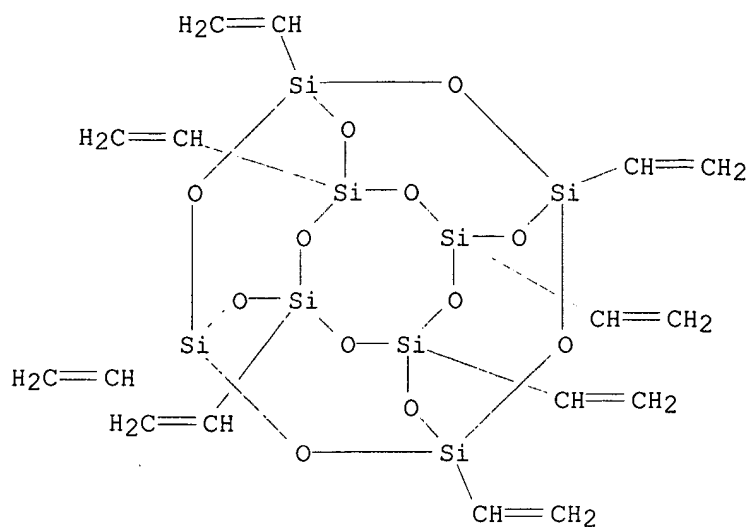
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 119329-56-5P 221326-46-1P 230316-02-6P
 268202-73-9P 308103-65-3P 326620-92-2P
 326620-98-8P 326620-99-9P 326621-00-5P
 326864-92-0P 326864-95-3P
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (process for formation of polyhedral oligomeric silsesquioxanes)
)
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RN 19086-35-2 HCAPLUS
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 (9CI) (CA INDEX NAME)

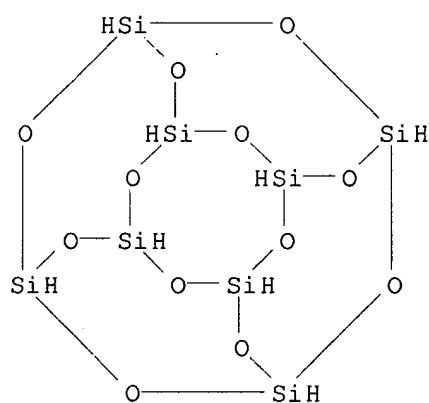


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 INDEX NAME)



RN 85233-78-9 HCAPLUS
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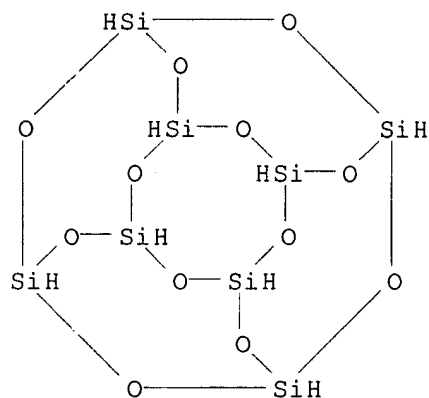
4 (D1-Me)

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4 [D1-CH=CH2]

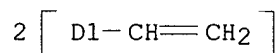
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 (CA INDEX NAME)

PAGE 1-A

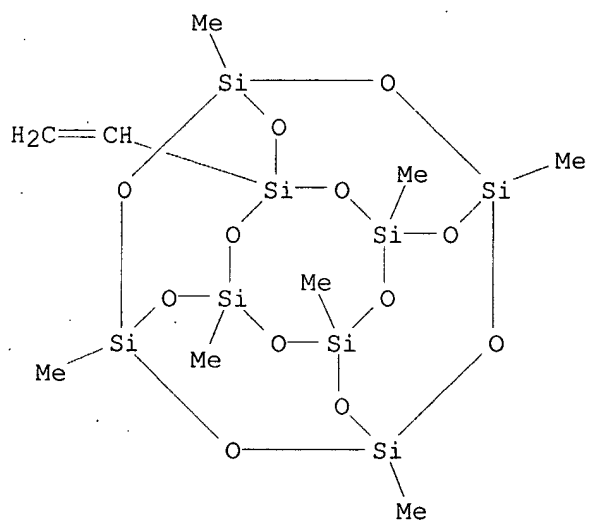


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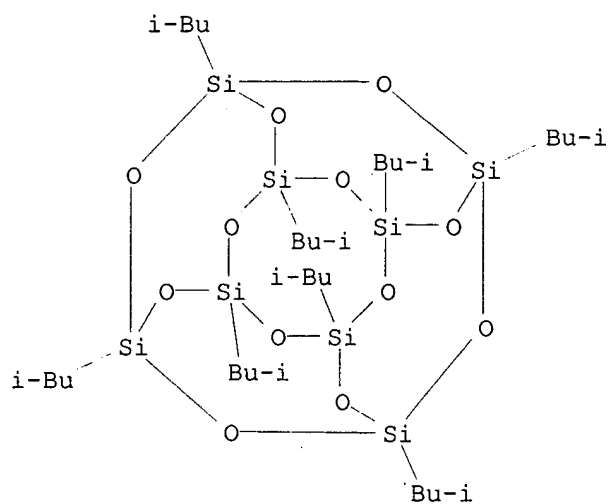


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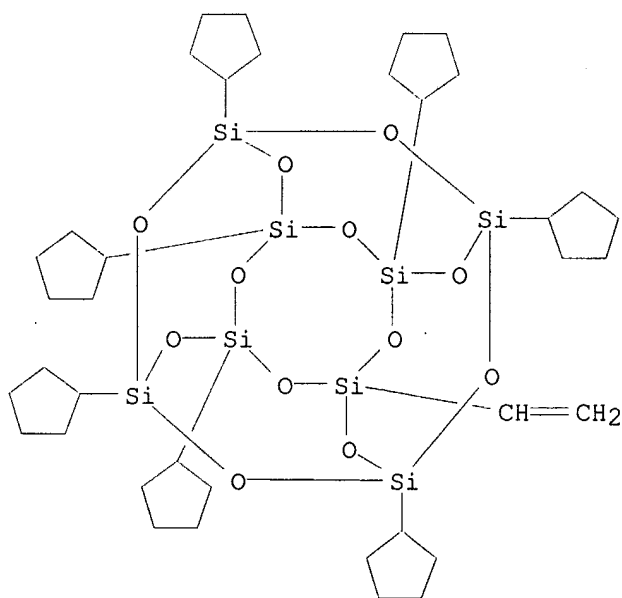
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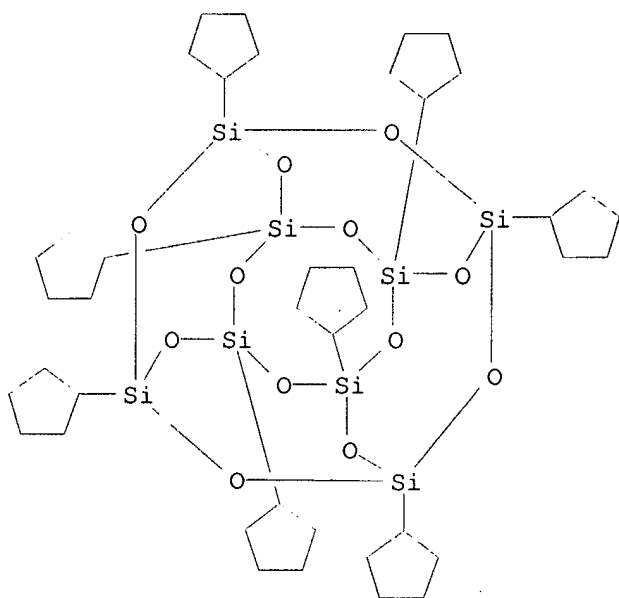
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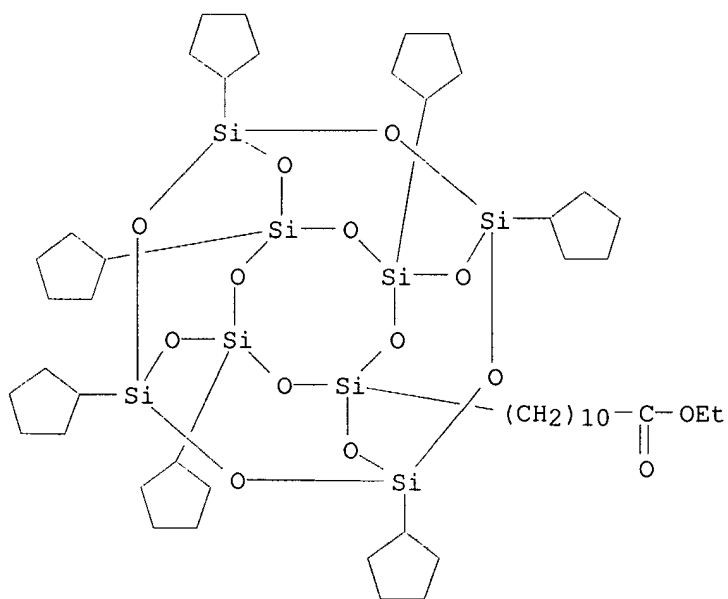
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RN 268202-73-9 HCAPLUS
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 (CA INDEX NAME)

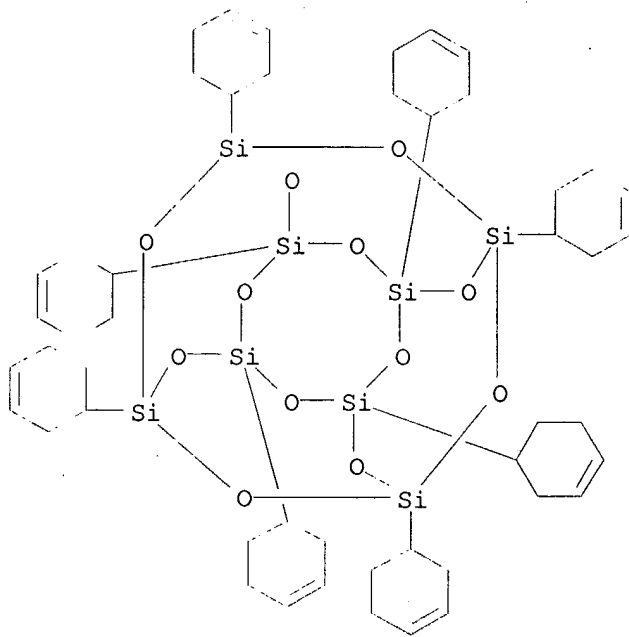


RN 308103-65-3 HCAPLUS
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 3,5,7,9,11,13,15-heptacyclopentyl-, ethyl ester (9CI) (CA INDEX NAME)



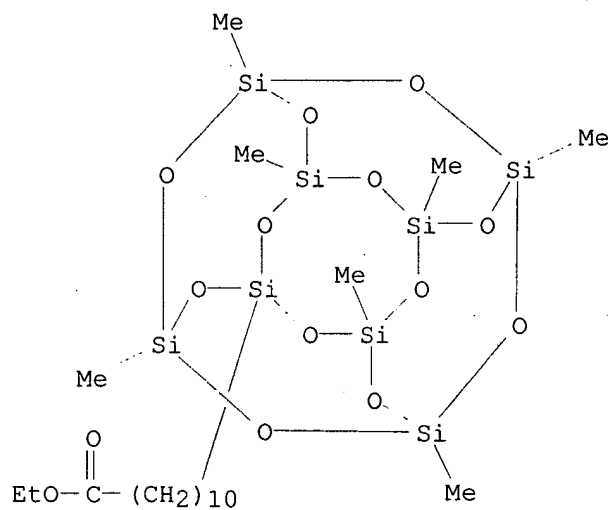
RN 326620-92-2 HCAPLUS
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 (9CI) (CA INDEX NAME)

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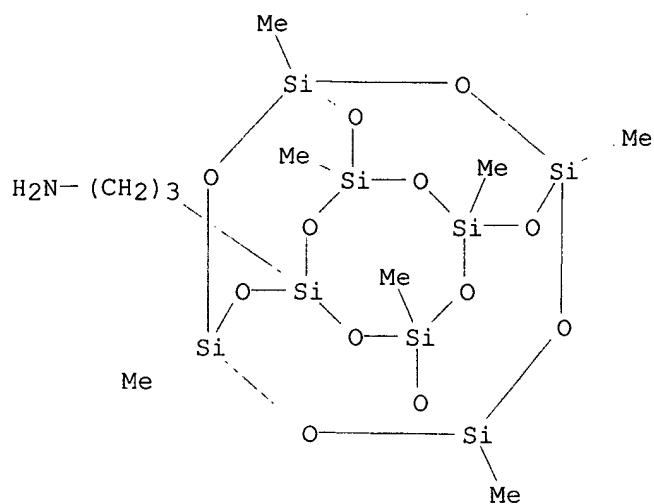


PAGE 2-A

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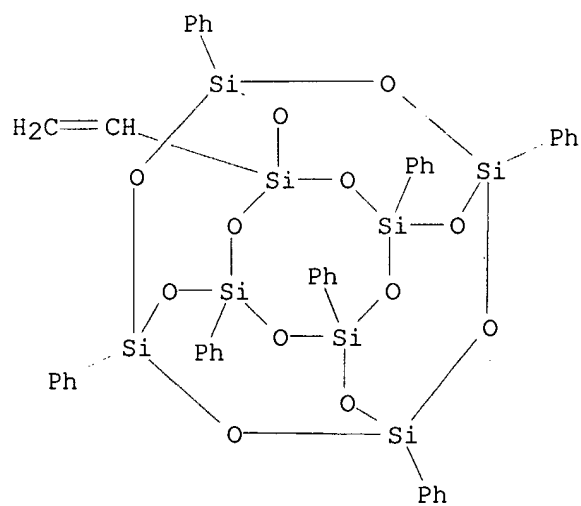


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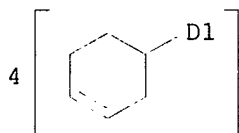
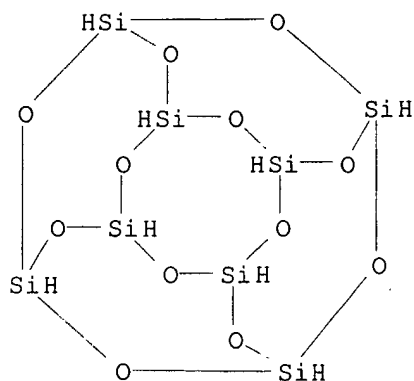
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, ethenylheptaphenyl- (9CI)
(CA INDEX NAME)



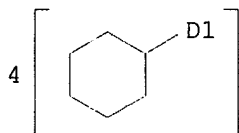
RN 326864-92-0 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, tetra-3-cyclohexen-1-yltetracyclohexyl- (9CI) (CA INDEX NAME)

PAGE 1-A

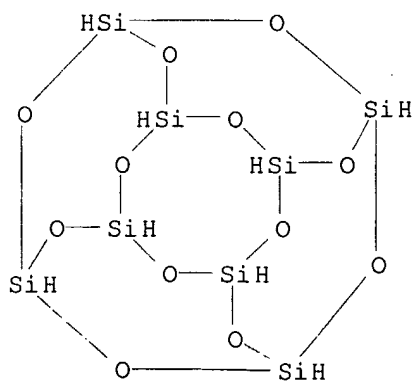


PAGE 2-A



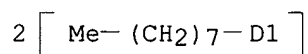
RN 326864-95-3 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, hexamethyldioctyl- (9CI)
 (CA INDEX NAME)

PAGE 1-A



6 (D1-Me)

PAGE 2-A



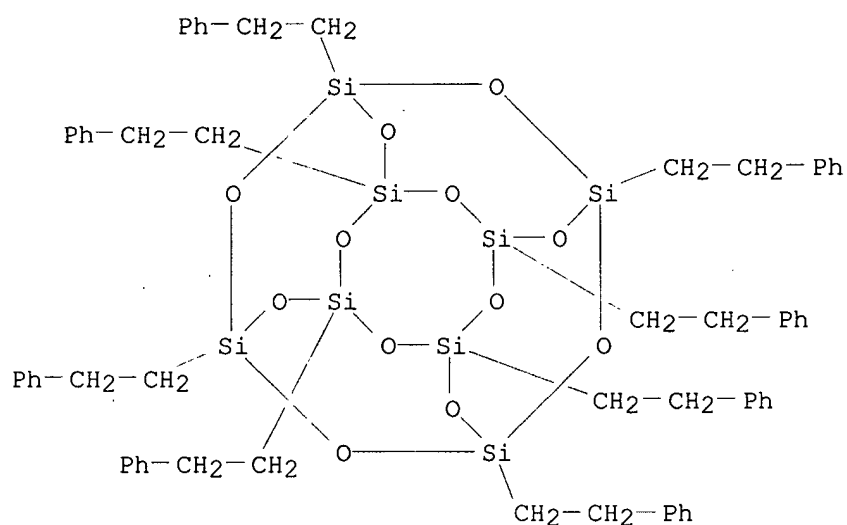
IT 100691-57-4 226726-51-8 326621-25-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(reactant for cross reaction or rearrangement reaction; process for formation of polyhedral oligomeric silsesquioxanes)

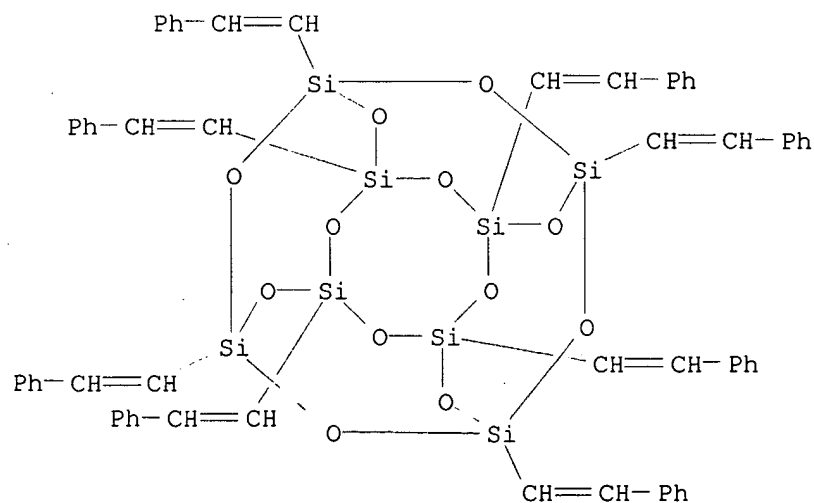
RN 100691-57-4 HCAPLUS

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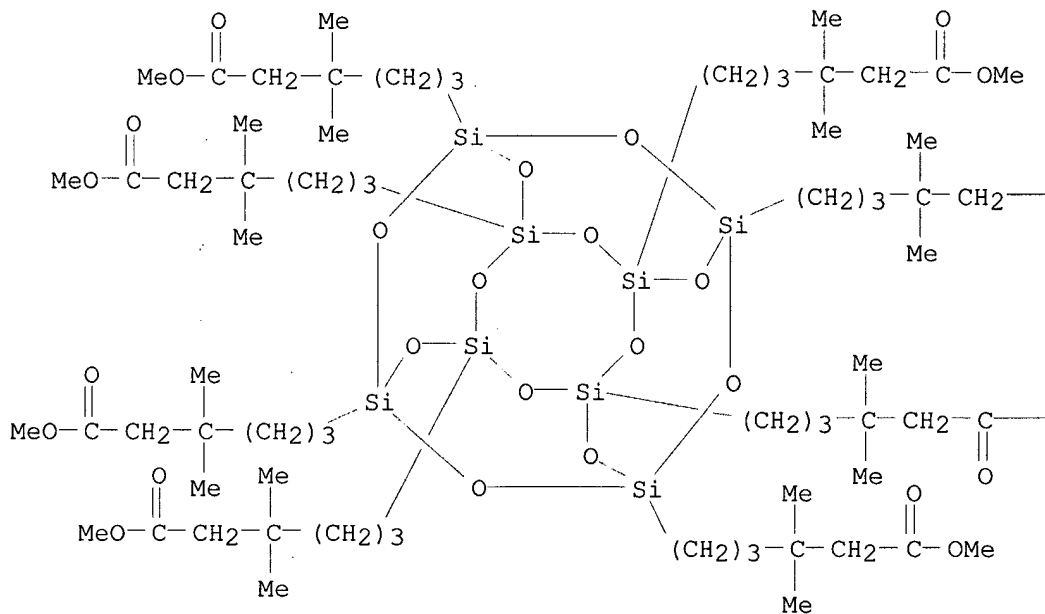
RN 226726-51-8 HCAPLUS

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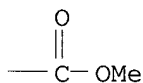


RN 326621-25-4 HCAPLUS
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 $\beta, \beta, \beta', \beta', \beta'', \beta'', \beta''', \beta''', \beta''''$
 $\beta''''', \beta''''', \beta''''', \beta''''', \beta''''', \beta''''', \beta''''$
 $\beta''''', \beta''''', \beta''''', \beta''''', \beta''''', \beta''''', \beta''''$
 NAME)

PAGE 1-A



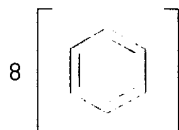
PAGE 1-B



—OMe

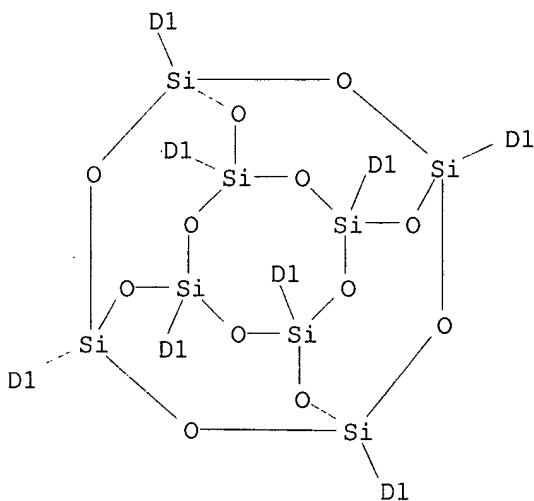
IT 326865-15-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant for cross reaction; process for formation of polyhedral
 oligomeric silsesquioxanes)
 RN 326865-15-0 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(methylphenyl)-
 (9CI) (CA INDEX NAME)

PAGE 1-A



8 (D1-Me)

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IT 157374-41-9, Phenylsilanetriol homopolymer
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC
 (Process); RACT (Reactant or reagent)
 (starting substrate; process for formation of polyhedral oligomeric
 silsesquioxanes)

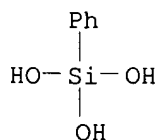
RN 157374-41-9 HCAPLUS

CN Silanetriol, phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 3047-74-3

CMF C6 H8 O3 Si



L82 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 2000:208315 HCAPLUS
 DN 132:335344

TI The preparation and properties of organic/inorganic hybrid materials by
blending polyhedral **oligosilsesquioxanes** into organic polymers

AU Blanski, Rusty L.; Phillips, Shawn H.; Chaffee, Kevin; Lichtenhan, Joseph;
Lee, Andre; Geng, Hei Ping

CS Air Force Research Laboratory, AFRL/PRSM, Edwards AFB, CA, 93524, USA

SO Polymer Preprints (American Chemical Society, Division of Polymer
Chemistry) (2000), 41(1), 585-586
CODEN: ACPPAY; ISSN: 0032-3934

PB American Chemical Society, Division of Polymer Chemistry

DT Journal

LA English

CC 37-6 (Plastics Manufacture and Processing)

AB The synthesis of organic polymer/inorg. ceramic hybrid materials is a
research area that is rapidly expanding. These hybrid materials have the
advantage of combining two disparate materials which can result in
something that may bridge the performance gap between the two systems.
Hybrid systems having a direct linkage between the polymer and inorg.
species have been prepared previously by incorporating polyhedral
oligosilsesquioxanes (POSS) into traditional organic polymers
(polymethacrylate, polystyrene, polynorbornene) by standard polymer preparation
procedures. A more convenient method of incorporating POSS without a
linkage into an organic polymer would be to blend it into the polymer. TEM
studies of five POSS-polystyrene blends are used to demonstrate that
polyhedral **oligosilsesquioxane** octamers can be dispersed into
polystyrene by altering the organic side groups of the octamers.

ST polyhedral **oligosilsesquioxane** octamer polystyrene hybrid;
pentacyclo octasiloxane deriv polystyrene hybrid

IT 69655-76-1 100691-57-4 183200-99-9
268202-73-9 268202-74-0
RL: MOA (Modifier or additive use); USES (Uses)
(preparation and properties of organic/inorg. hybrid materials by blending
polyhedral **oligosilsesquioxane** octamers into polystyrene)

IT 9003-53-6, Polystyrene
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(preparation and properties of organic/inorg. hybrid materials by blending
polyhedral **oligosilsesquioxane** octamers into polystyrene)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Haddad, T; Macromolecules 1996, V29, P7302 HCAPLUS

(2) Lichtenhan, J; Comments Inorg Chem 1995, V17, P115 HCAPLUS

(3) Lichtenhan, J; Macromolecules 1993, V26, P2141 HCAPLUS

(4) Mark, J; Hybrid Organic-Inorganic Composites, ACS Symposium Series 1995,
V585

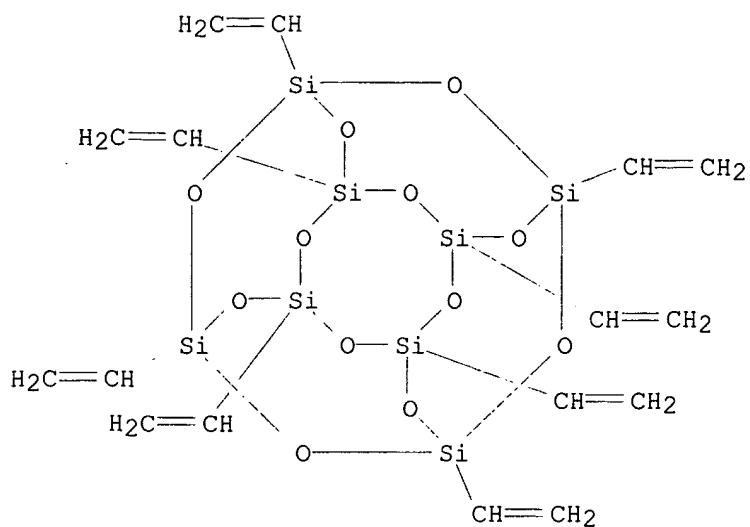
(5) Mascia, L; Trends Polym Sci 1995, V3, P61 HCAPLUS

(6) Sanchez, C; Nouv J Chem 1994, V18, P1007 HCAPLUS

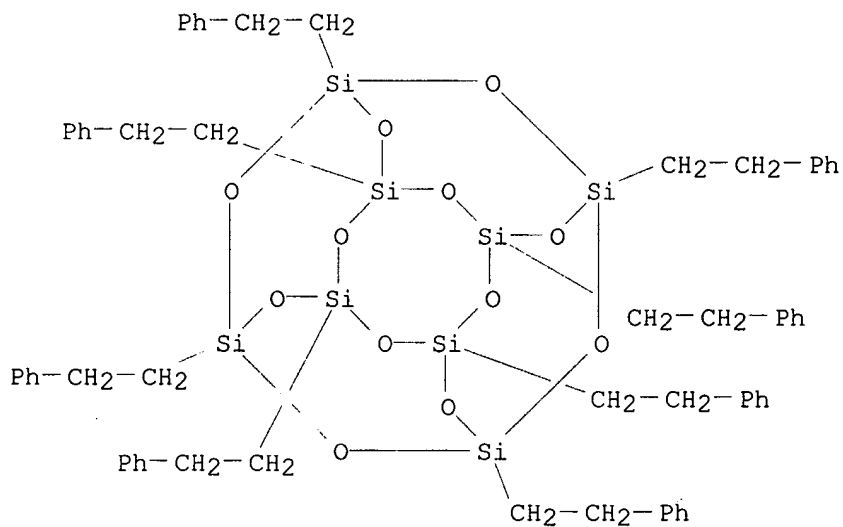
IT 69655-76-1 100691-57-4 183200-99-9
268202-73-9 268202-74-0
RL: MOA (Modifier or additive use); USES (Uses)
(preparation and properties of organic/inorg. hybrid materials by blending
polyhedral **oligosilsesquioxane** octamers into polystyrene)

RN 69655-76-1 HCAPLUS

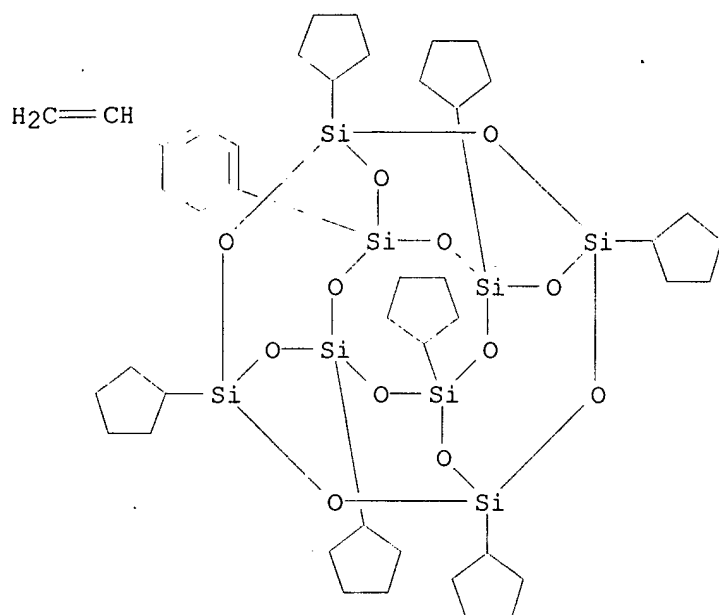
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octaethenyl- (9CI) (CA
INDEX NAME)



RN 100691-57-4 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(2-phenylethyl)-
 (9CI) (CA INDEX NAME)

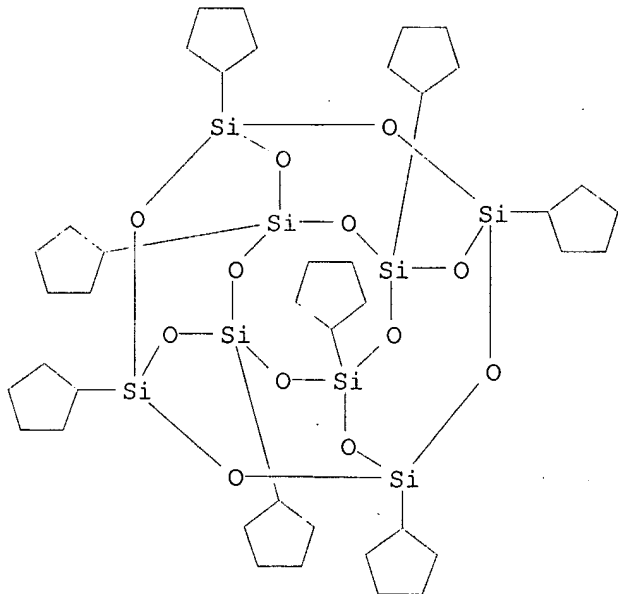


RN 183200-99-9 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, heptacyclopentyl(4-
 ethenylphenyl)- (9CI) (CA INDEX NAME)



RN 268202-73-9 HCAPLUS

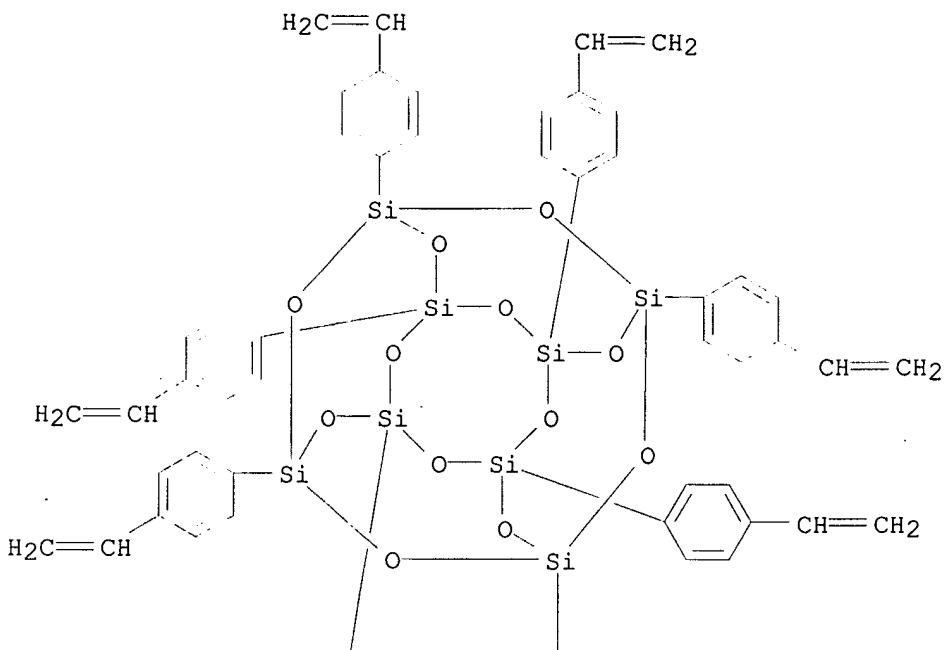
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octacyclopentyl- (9CI)
(CA INDEX NAME)



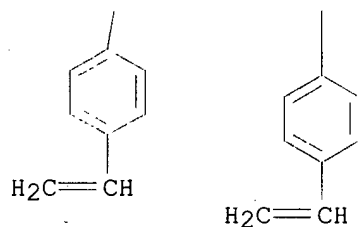
RN 268202-74-0 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-ethenylphenyl)-
(9CI) (CA INDEX NAME)

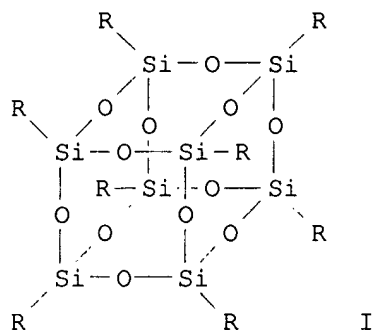
PAGE 1-A



PAGE 2-A



L82 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 1998:433629 HCAPLUS
 DN 129:203242
 TI Octafunctionalized polyhedral **oligosilsesquioxanes** as scaffolds:
 synthesis of peptidyl **silsesquioxanes**
 AU Feher, Frank J.; Wyndham, Kevin D.; Scialdone, Mark A.
 CS Department of Chemistry, University of California, Irvine, CA, 92697-2025,
 USA
 SO Chemical Communications (Cambridge) (1998), (14), 1469-1470
 CODEN: CHCOFS; ISSN: 1359-7345
 PB Royal Society of Chemistry
 DT Journal
 LA English
 CC 34-3 (Amino Acids, Peptides, and Proteins)
 Section cross-reference(s): 29
 GI



AB The first use of polyhedral **silsesquioxanes** I [R = (CH₂)₃NH₂, p-C₆H₄CH₂OH] to organize ensembles of biol. relevant motifs is described. N-Protected amino acids and peptides can be attached to the amino and hydroxy groups of I in either a convergent fashion or a divergent fashion to produce peptidyl **silsesquioxanes** in excellent yield and purity.

ST peptidyl **silsesquioxane** octafunctionalized prepn

IT Siloxanes (nonpolymeric)

RL: SPN (Synthetic preparation); PREP (Preparation)
(octafunctionalized peptide derivs.; preparation of peptidyl **silsesquioxanes** on octafunctionalized polyhedral **oligosilsesquioxane** scaffolds)

IT Peptides, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)
(**silsesquioxane** scaffold derivatized; preparation of peptidyl **silsesquioxanes** on octafunctionalized polyhedral **oligosilsesquioxane** scaffolds)

IT 127800-92-4 203256-25-1

RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of peptidyl **silsesquioxanes** on octafunctionalized polyhedral **oligosilsesquioxane** scaffolds)

IT 212127-92-9P 212127-93-0P 212127-94-1P

212127-95-2P 212127-97-4P 212127-99-6P

212188-76-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of peptidyl **silsesquioxanes** on octafunctionalized polyhedral **oligosilsesquioxane** scaffolds)

IT 212127-90-7P 212127-91-8P 212127-96-3P

212187-88-7P 212188-69-7P 212189-21-4P 212189-29-2P 212189-55-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of peptidyl **silsesquioxanes** on octafunctionalized polyhedral **oligosilsesquioxane** scaffolds)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Akerfeldt, K; J Am Chem Soc 1992, V114, P9656 HCAPLUS
- (2) Beerli, R; Tetrahedron Lett 1995, V36, P1813 HCAPLUS
- (3) Carell, T; Angew Chem, Int Ed Engl 1994, V33, P2059
- (4) Carell, T; Angew Chem, Int Ed Engl 1994, V33, P2061
- (5) Carpino, L; J Am Chem Soc 1993, V115, P4397 HCAPLUS
- (6) Carpino, L; Tetrahedron Lett 1994, V35, P2279 HCAPLUS
- (7) Ehrlich, A; J Org Chem 1996, V61, P8831 HCAPLUS
- (8) Feher, F; Chem Commun 1998, P323 HCAPLUS
- (9) Feher, F; Chem Commun, submitted
- (10) Feher, F; J Org Chem, in preparation
- (11) Feher, F; J Organomet Chem 1989, V379, P33 HCAPLUS
- (12) Hamuro, Y; Angew Chem, Int Ed Engl 1997, V36, P2680 HCAPLUS
- (13) Inoue, K; J Am Chem Soc 1997, V119, P6191 HCAPLUS

- (14) Marra, A; J Org Chem 1996, V61, P5155 HCAPLUS
(15) Mutter, M; J Am Chem Soc 1992, V114, P1463 HCAPLUS
(16) Sasaki, T; J Am Chem Soc 1989, V111, P380 HCAPLUS
(17) Voronkov, M; Top Curr Chem 1982, V102, P199 HCAPLUS
(18) Wiedner, R; US 5047492 1991 HCAPLUS

IT 127800-92-4 203256-25-1

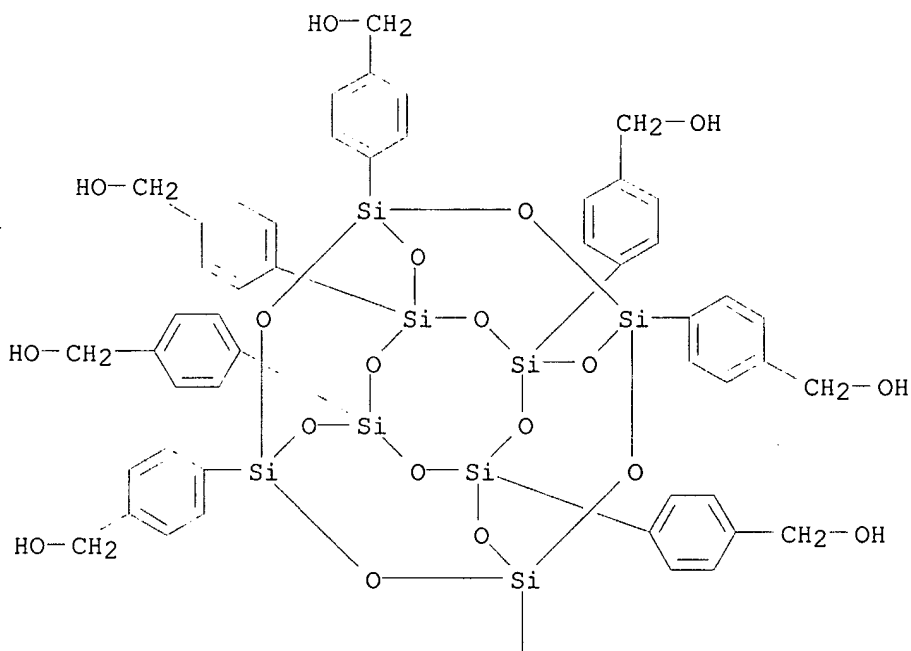
RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of peptidyl **silsesquioxanes** on octafunctionalized polyhedral **oligosilsesquioxane** scaffolds)

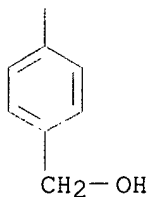
RN 127800-92-4 HCAPLUS

CN Benzenemethanol, 4,4',4'',4''',4'''',4''''',4'''''',4'''''''-
pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctakis- (9CI) (CA INDEX NAME)

PAGE 1-A

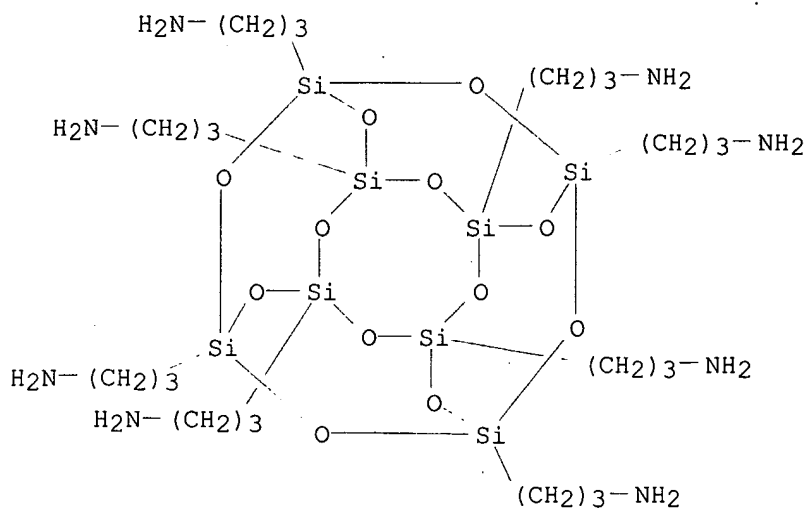


PAGE 2-A



RN 203256-25-1 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxaneoctapropanamine,
octahydrochloride (9CI) (CA INDEX NAME)



● 8 HCl

IT 212127-92-9P 212127-93-0P 212127-94-1P

212127-95-2P 212127-97-4P 212127-99-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent).

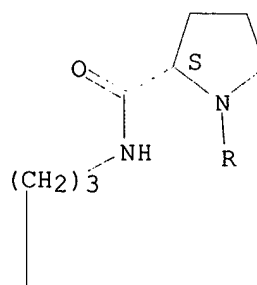
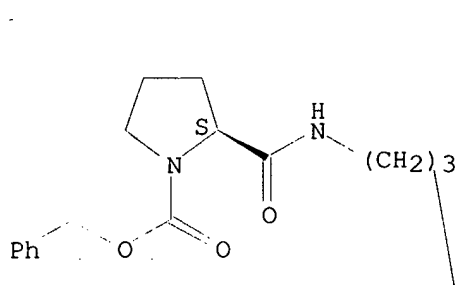
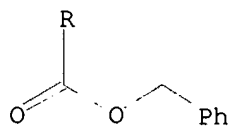
(preparation of peptidyl silsesquioxanes on octafunctionalized polyhedral oligosilsesquioxane scaffolds)

RN 212127-92-9 HCAPLUS

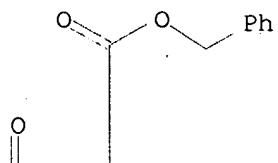
CN 1-Pyrrolidinecarboxylic acid, 2,2',2'',2''',2''''',2''''',2''''',2''''''- [pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-octayloctakis(3,1-propanediyliminocarbonyl)]octakis-, octakis(phenylmethyl) ester, (2S,2'S,2''S,2'''S,2''''S,2''''S,2''''S,2''''S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

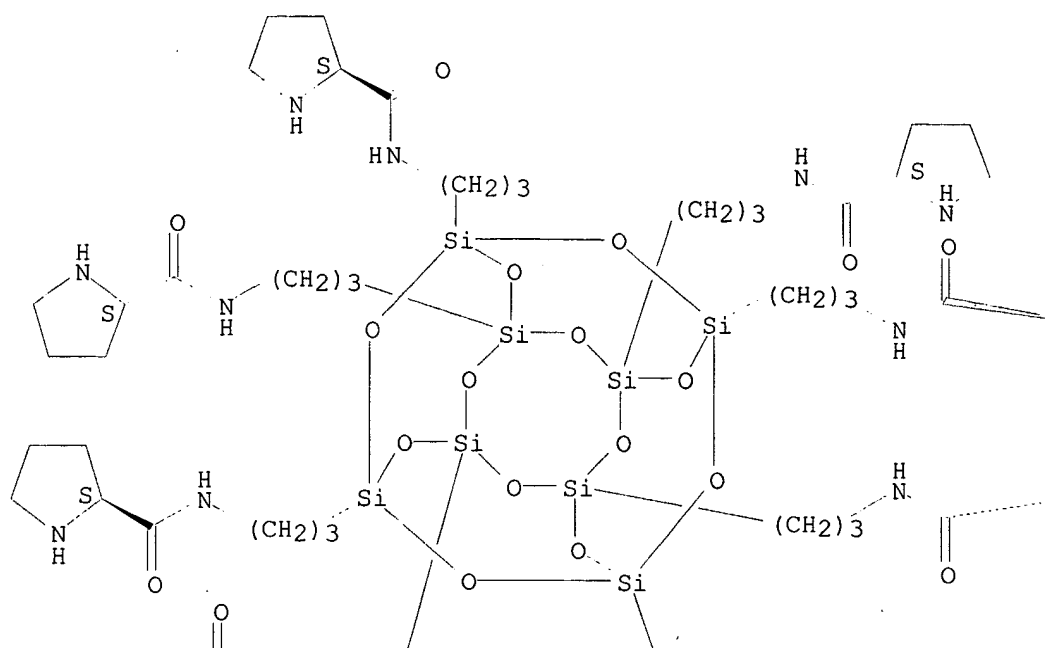
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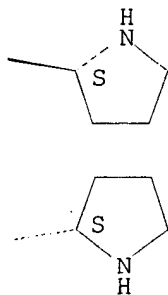
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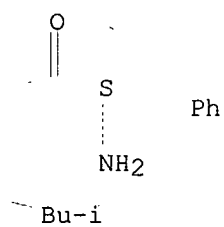
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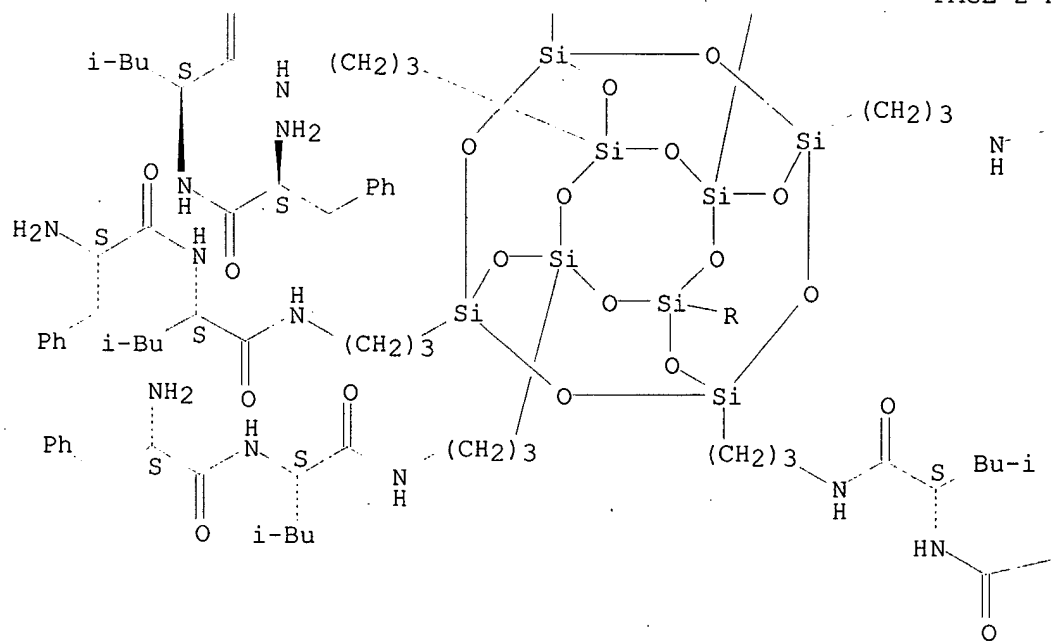
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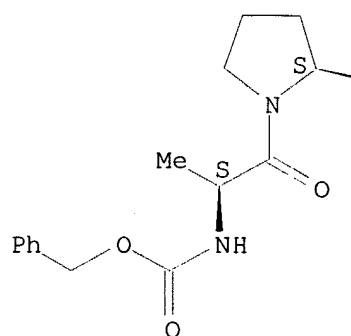
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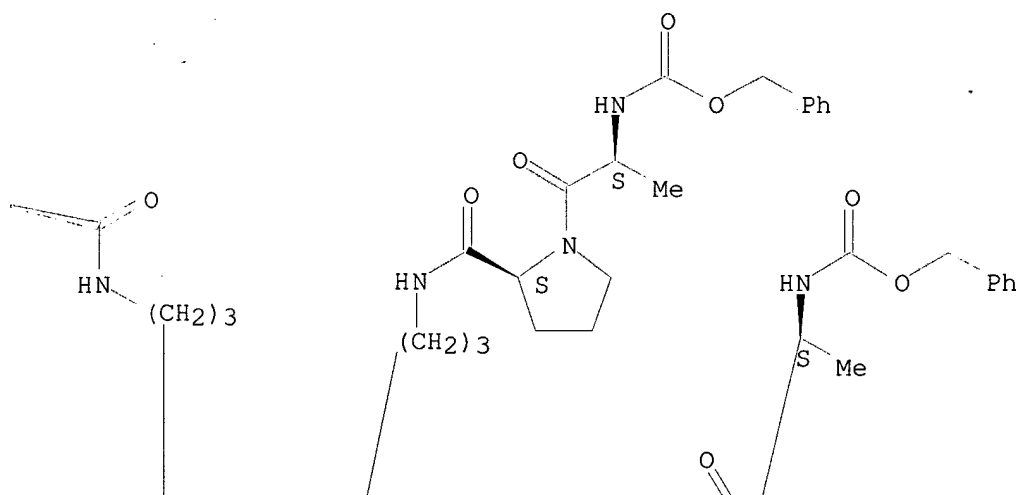
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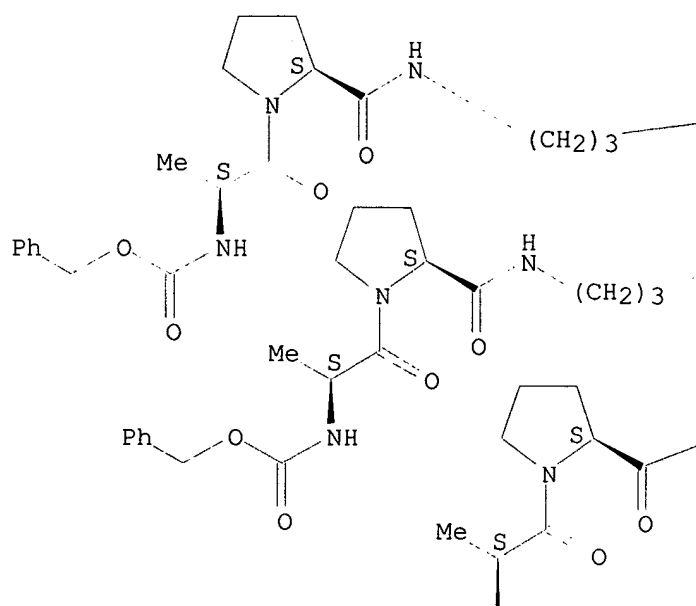
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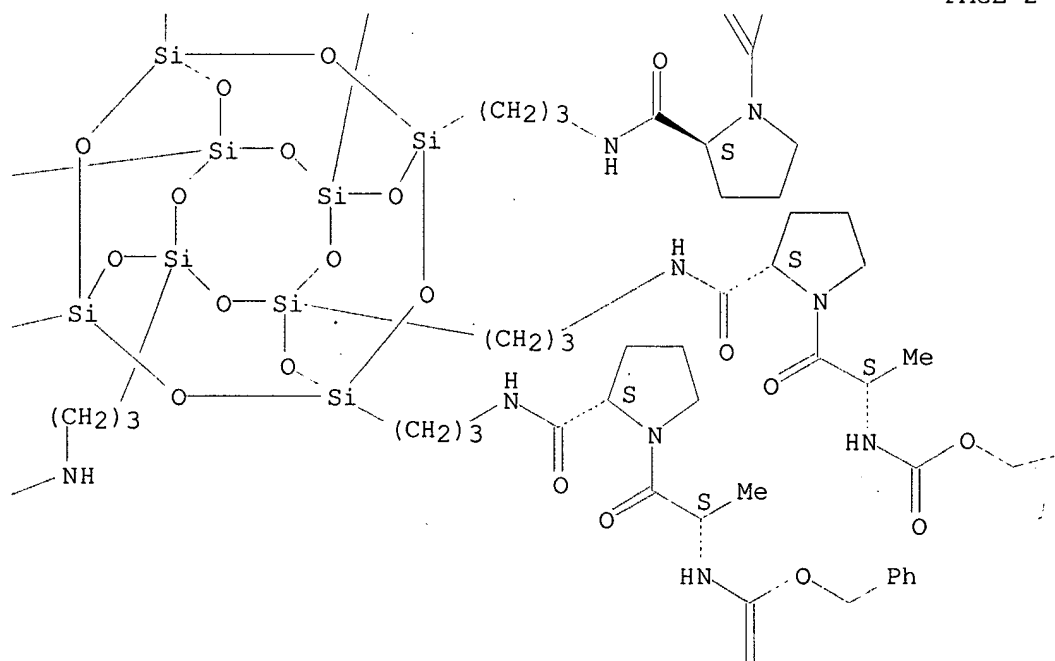
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PAGE 2-A



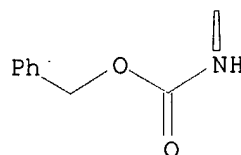
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PAGE 2-C

Ph

PAGE 3-A



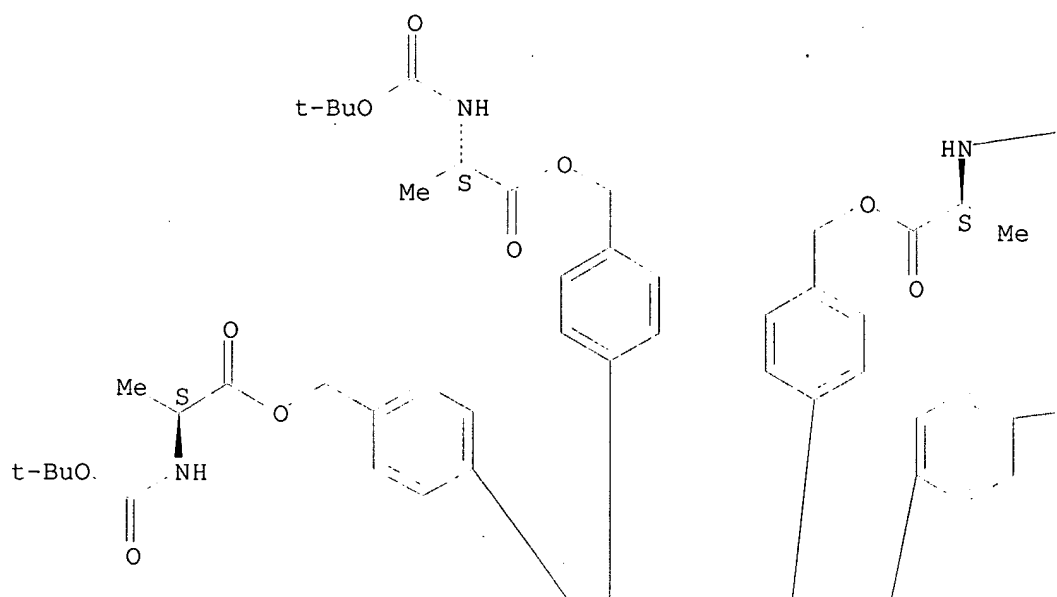
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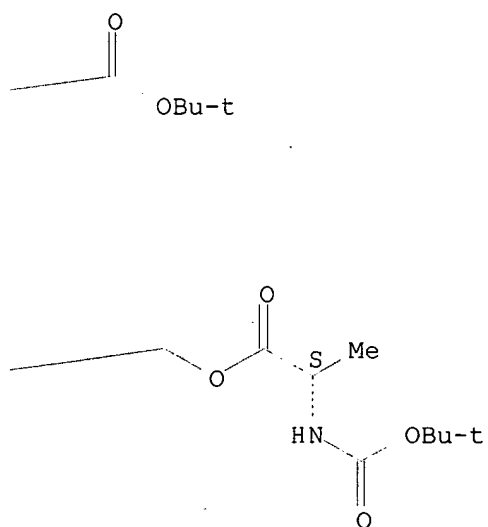
RN 212127-97-4 HCAPLUS
CN L-Alanine, N-[(1,1-dimethylethoxy)carbonyl]-,
pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctakis(4,1-phenylenemethylene) ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

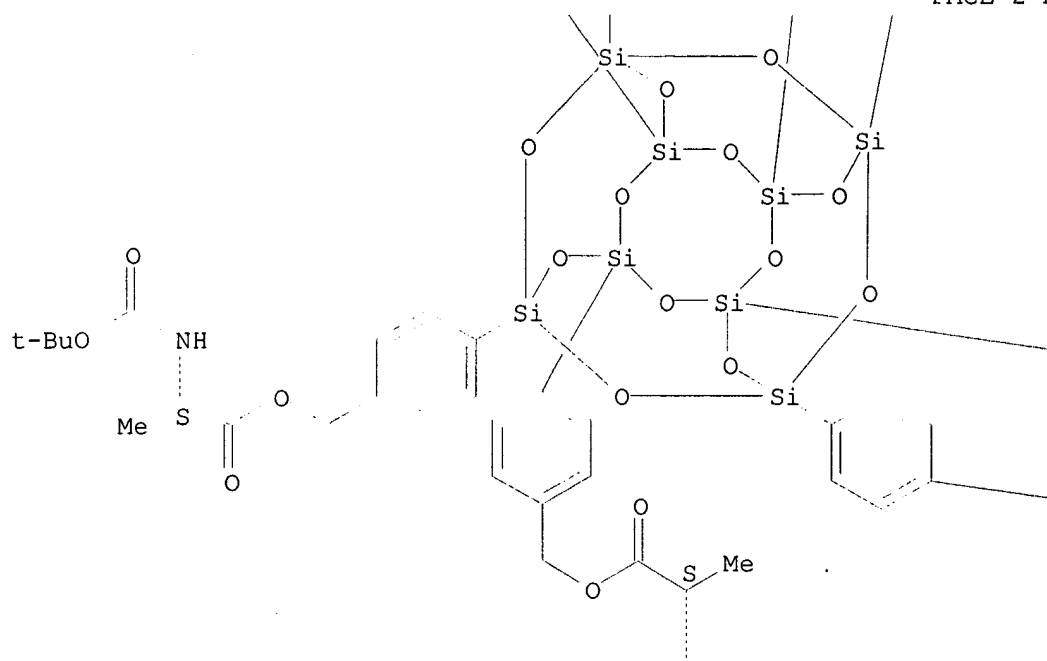
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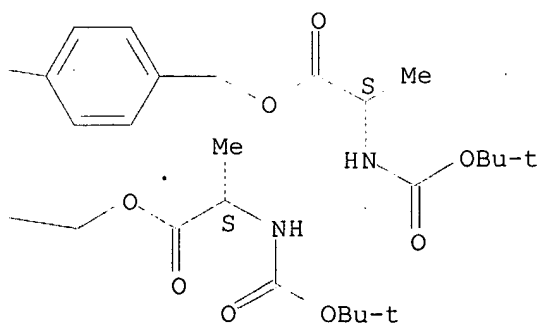
PAGE 1-B



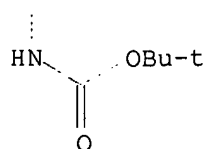
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PAGE 3-A



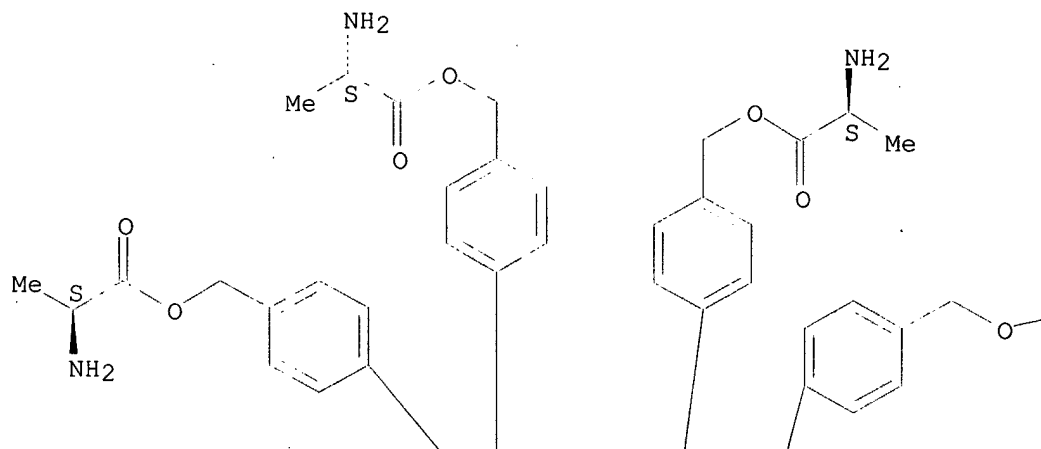
RN 212127-99-6 HCAPLUS
CN L-Alanine, pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-
1,3,5,7,9,11,13,15-octayloctakis(4,1-phenylenemethylene) ester,
octakis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

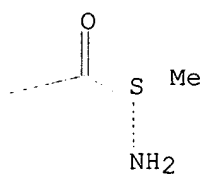
CRN 212127-98-5
CMF C80 H96 N8 O28 Si8

Absolute stereochemistry.

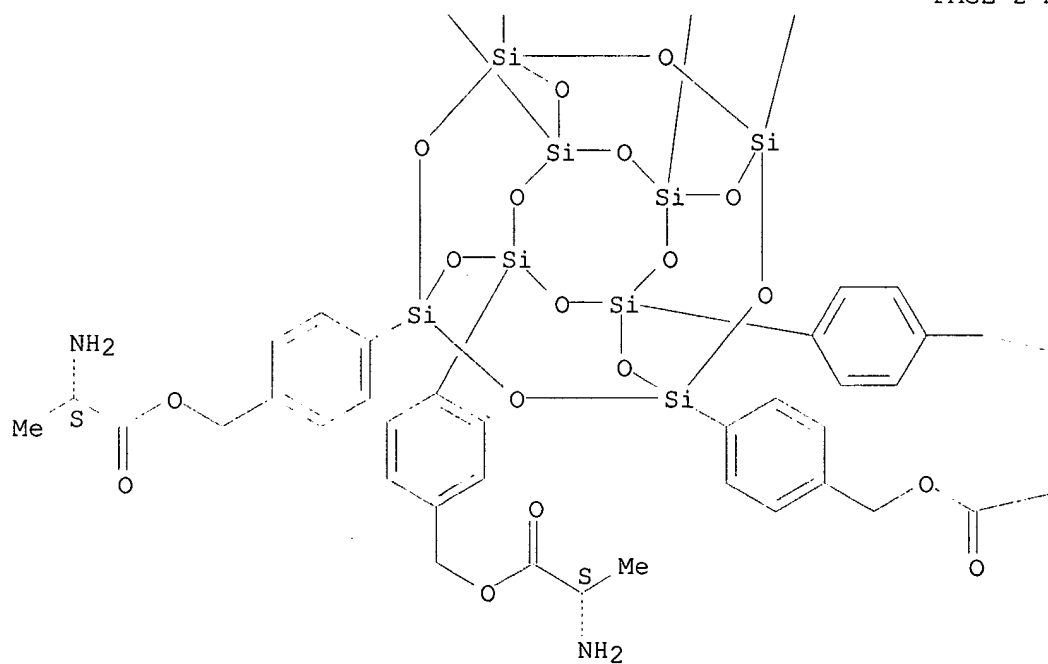
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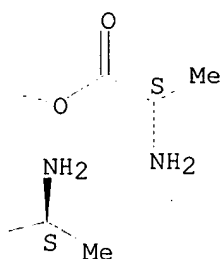
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PAGE 2-A



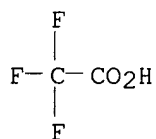
PAGE 2-B



CM 2

CRN 76-05-1

CMF C2 H F3 O2



IT 212127-90-7P 212127-91-8P 212127-96-3P

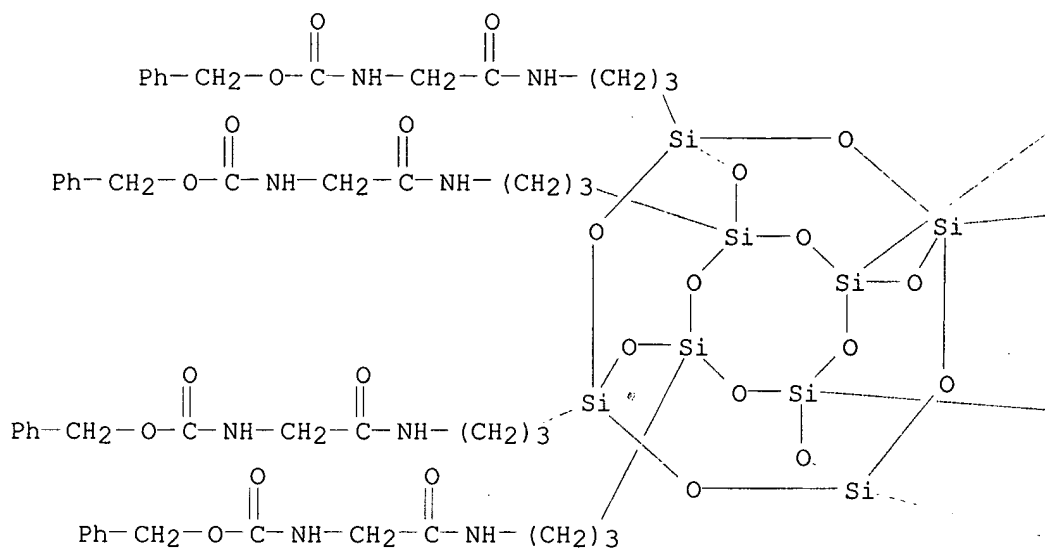
RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of peptidyl silsesquioxanes on octafunctionalized polyhedral oligosilsesquioxane scaffolds)

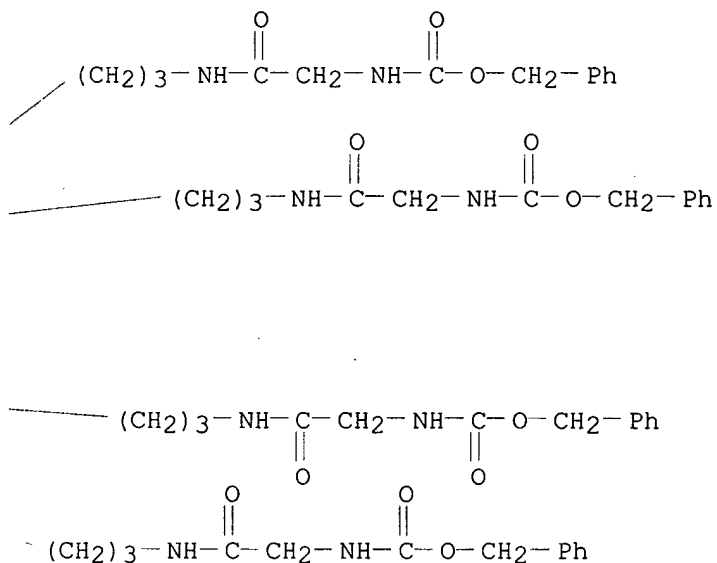
RN 212127-90-7 HCAPLUS

CN Carbamic acid, [pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-octayloctakis[3,1-propanediylimino(2-oxo-2,1-ethanediyl)]]octakis-, octakis(phenylmethyl) ester (9CI) (CA INDEX NAME)

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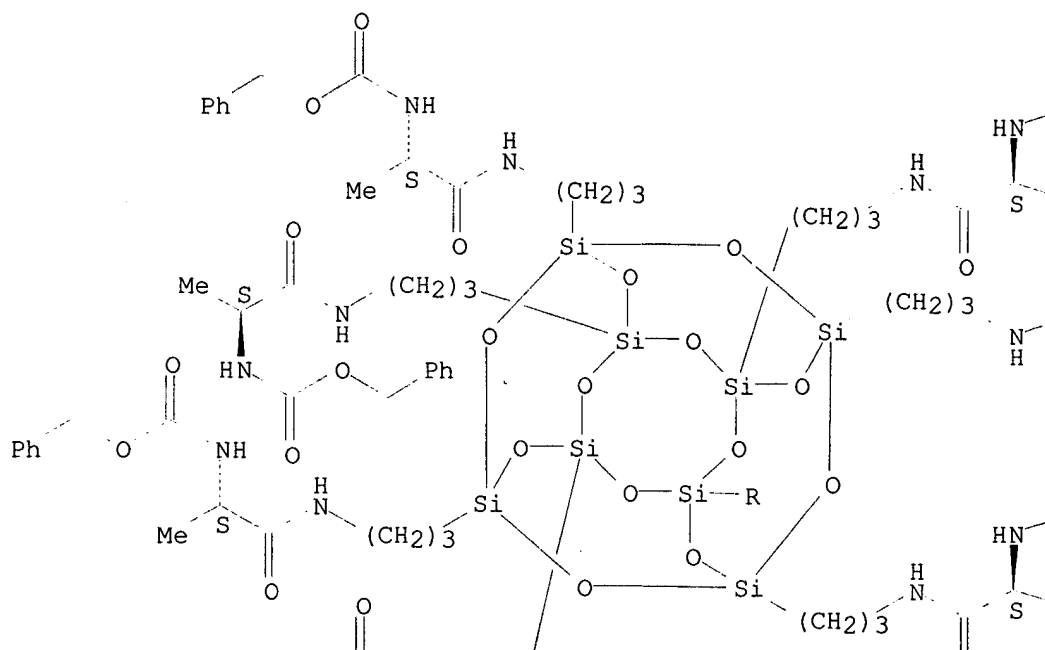


RN 212127-91-8 HCAPLUS

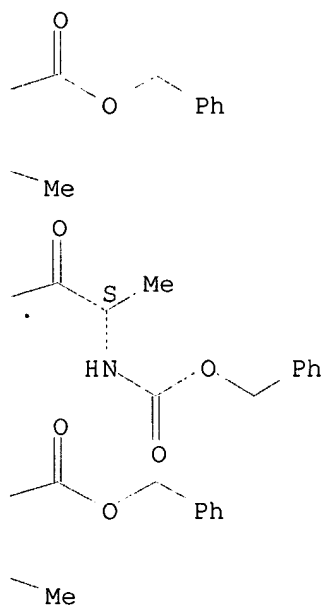
CN Carbamic acid, [pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-octayloctakis[3,1-propanediylimino[(1S)-1-methyl-2-oxo-2,1-ethanediyl]]]octakis-, octakis(phenylmethyl) ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

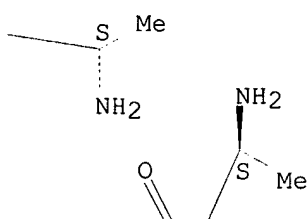
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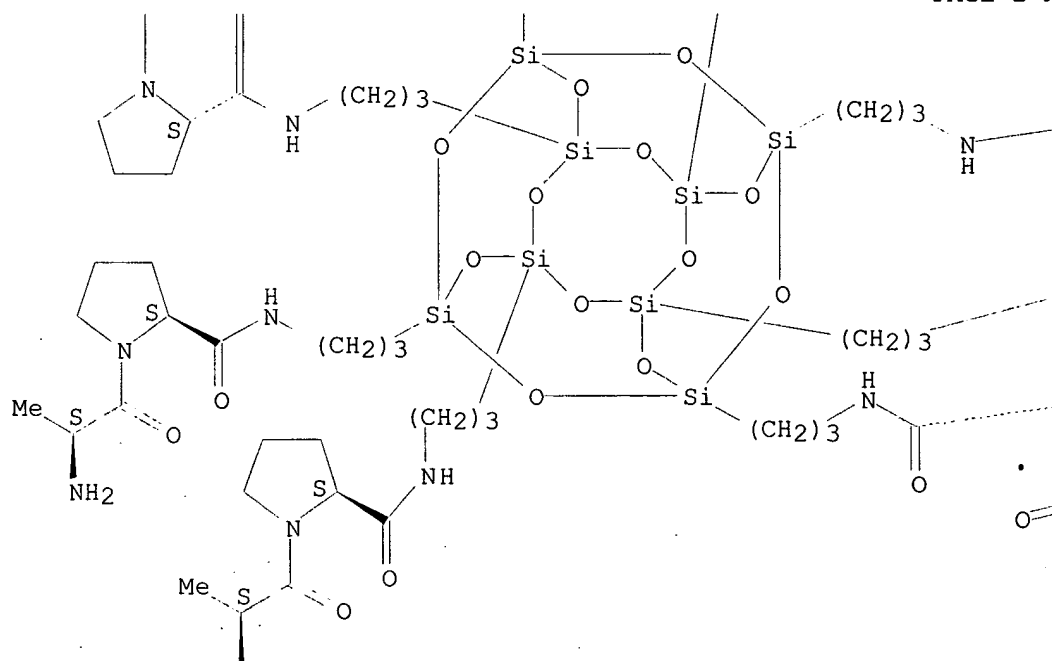
PAGE 1-B



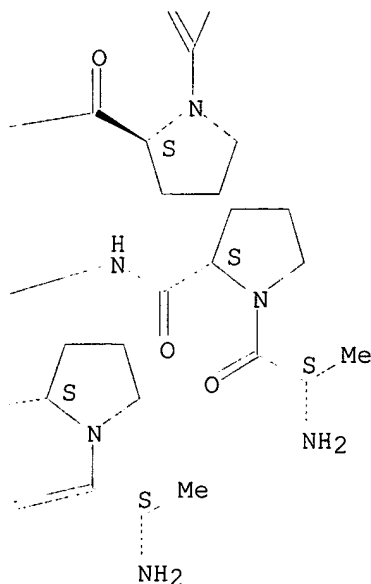
PAGE 1-B



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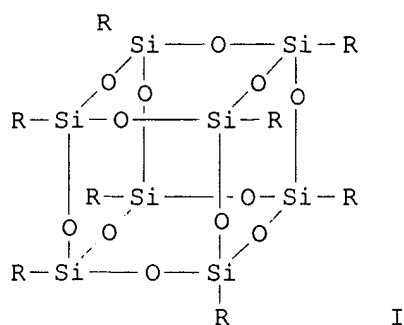


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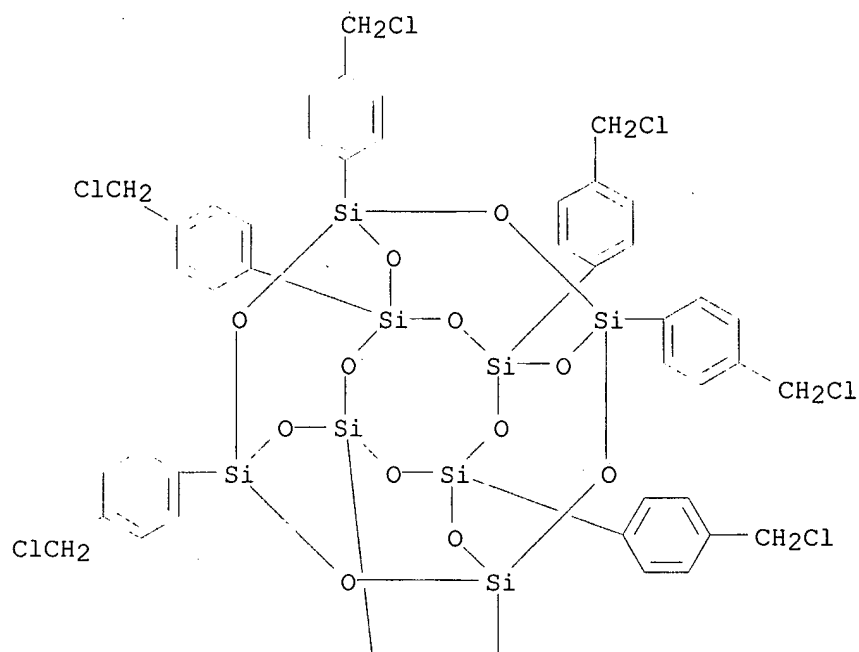
● 8 HCl

L82 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 1990:424226 HCAPLUS
 DN 113:24226
 TI Syntheses of highly-functionalized polyhedral **oligosilsesquioxanes**
 AU Feher, Frank J.; Budzichowski, Theodore A.
 CS Dep. Chem., Univ. California, Irvine, CA, 92717, USA
 SO Journal of Organometallic Chemistry (1989), 379(1-2), 33-40
 CODEN: JORCAI; ISSN: 0022-328X
 DT Journal
 LA English
 CC 29-14 (Organometallic and Organometalloidal Compounds)
 OS CASREACT 113:24226
 GI

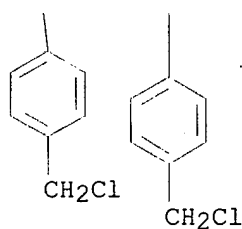


- AB The hydrolytic condensation of p-ClCH₂C₆H₄SiCl₃ in aqueous acetone affords [p-ClC₂C₆H₄SiO_{3/2}]₈ (I; R = C₆H₄X-4, X = Cl) a synthetically useful precursor for the syntheses of octafunctional polyhedral **oligosilsesquioxanes** [p-XCH₂C₆H₄SiO_{1.5}]₈, including X = OH, ONO₂, OAs, p-nitrobenzoyl and methylterephthaloyl).
- ST chlorosilane hydrolytic cyclocondensation formation **oligosilsesquioxane**; polyhedron **oligosilsesquioxane** functionalized
- IT **Silsesquioxanes**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (oligo-, preparation of, from hydrolytic condensation of organotrichlorosilanes)
- IT Cyclocondensation reaction
 (hydrolytic, of functionalized chlorosilanes, **oligosilsesquioxanes** from)
- IT 100-20-9, 1,4-Benzenedicarbonyl dichloride 122-04-3
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (condensation of, with [(chloromethyl)phenyl] **oligosilsesquioxane**)
- IT 13688-90-9
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (hydrolytic cyclocondensation reaction of, **oligosilsesquioxane** from)
- IT **127800-90-2P**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation and iodination of)
- IT **127800-91-3P 127800-92-4P**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation and reactions of)
- IT 7783-93-9P **127800-93-5P 127800-94-6P 127800-95-7P 127822-96-2P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
- IT **127800-90-2P**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation and iodination of)
- RN 127800-90-2 HCAPLUS
- CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis[4-(chloromethyl)phenyl]- (9CI) (CA INDEX NAME)

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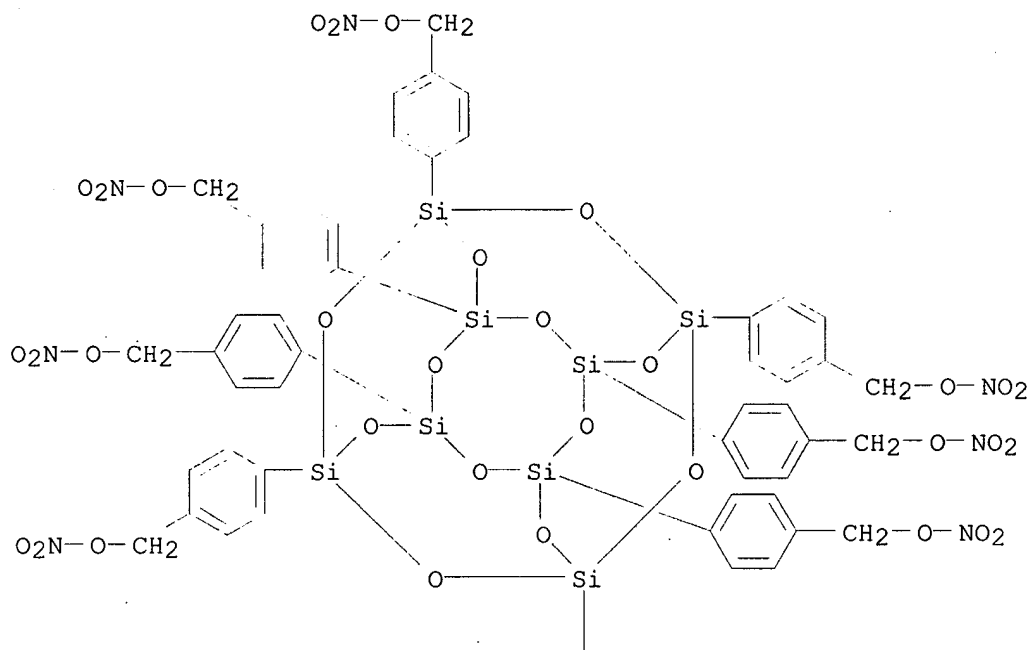


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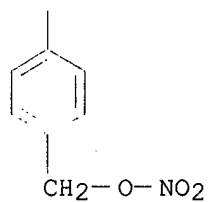


IT 127800-91-3P 127800-92-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and reactions of)
 RN 127800-91-3 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis[4-
 (iodomethyl)phenyl]- (9CI) (CA INDEX NAME)

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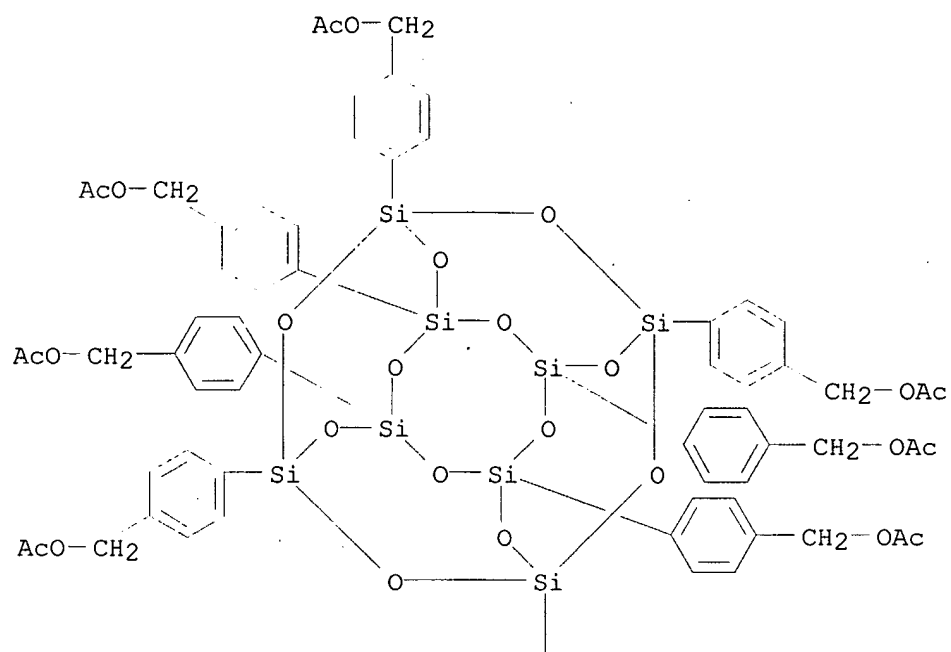


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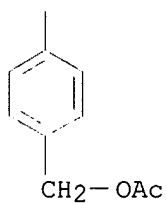
RN      127800-94-6  HCAPLUS
CN      Benzenemethanol, 4,4',4'',4''',4''''',4''''''',4''''''''',4'''''''''-
        pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
        octayloctakis-, octaacetate (9CI)  (CA INDEX NAME)

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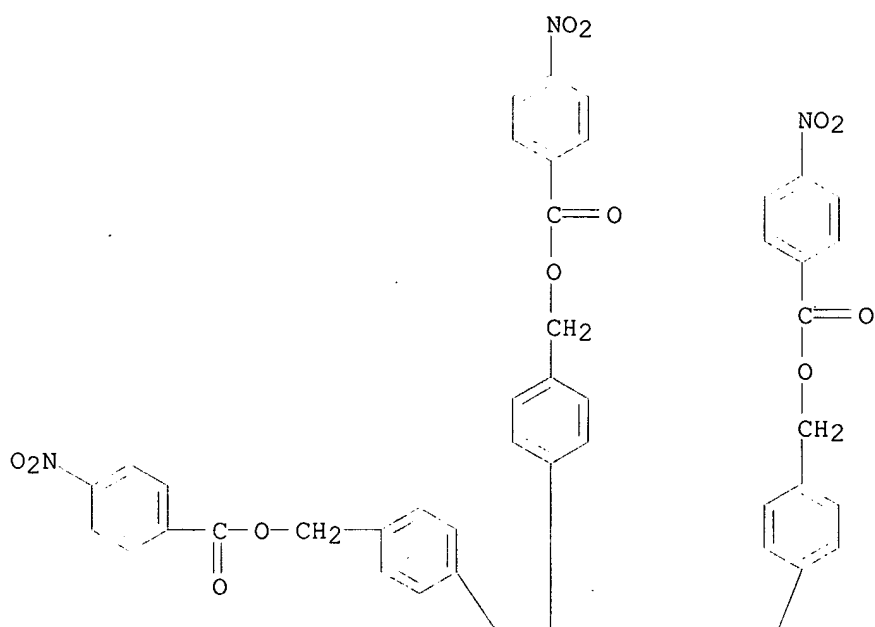


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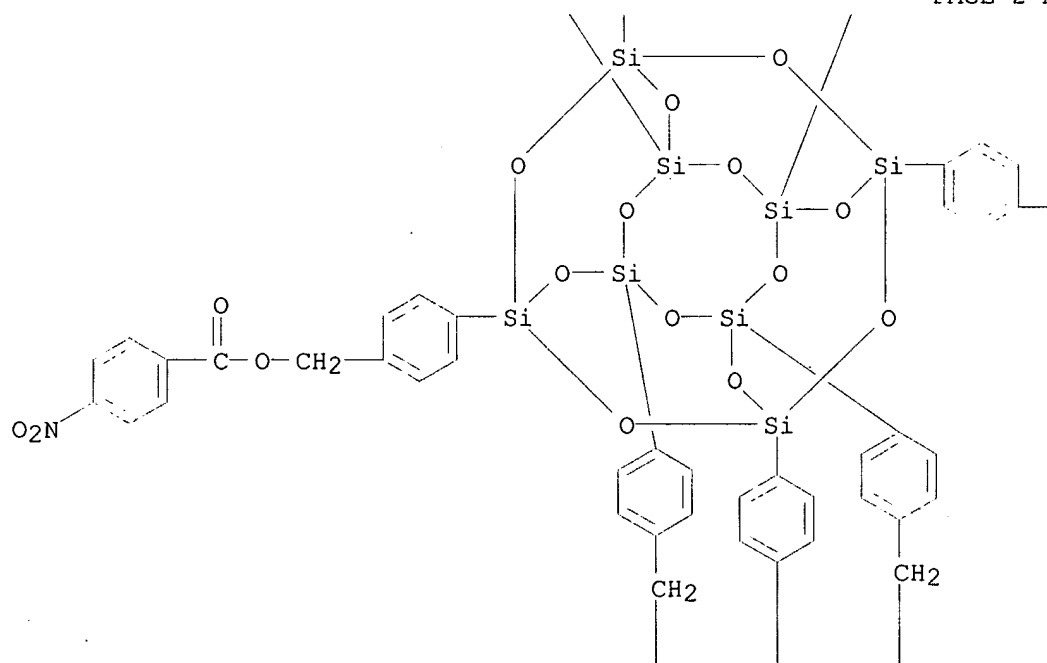


RN 127800-95-7 HCAPLUS
CN Benzenemethanol, 4,4',4'',4''',4''''',4''''''',4''''''''',4''''''''''-
pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctakis-, octakis(4-nitrobenzoate) (9CI) (CA INDEX NAME)

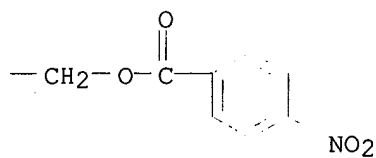
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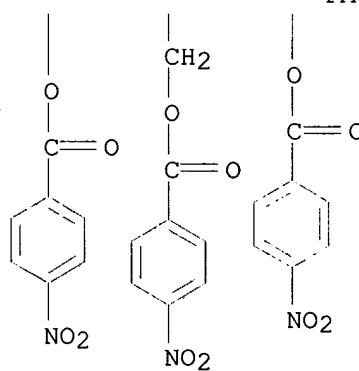
PAGE 2-A



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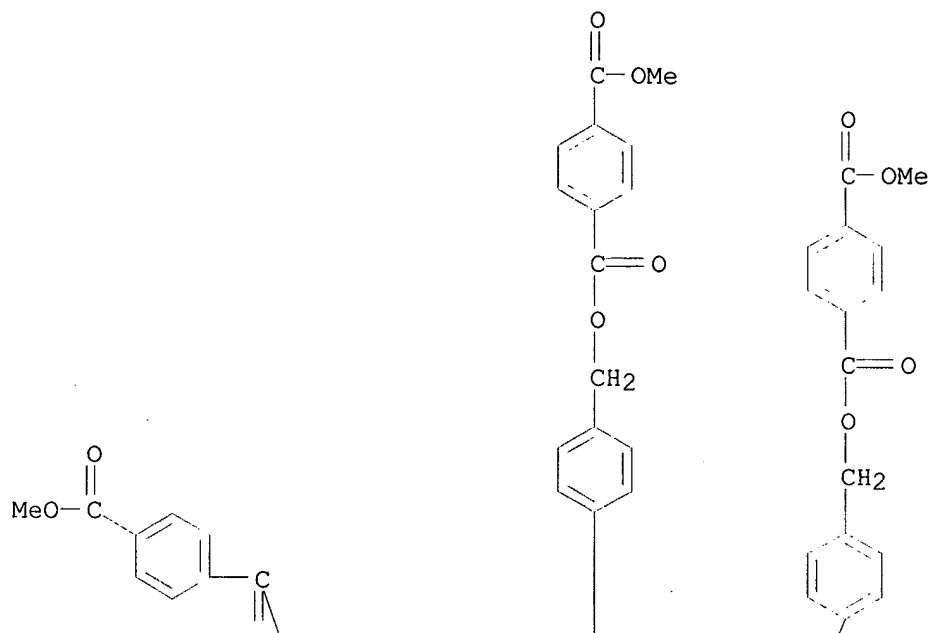
PAGE 3-A



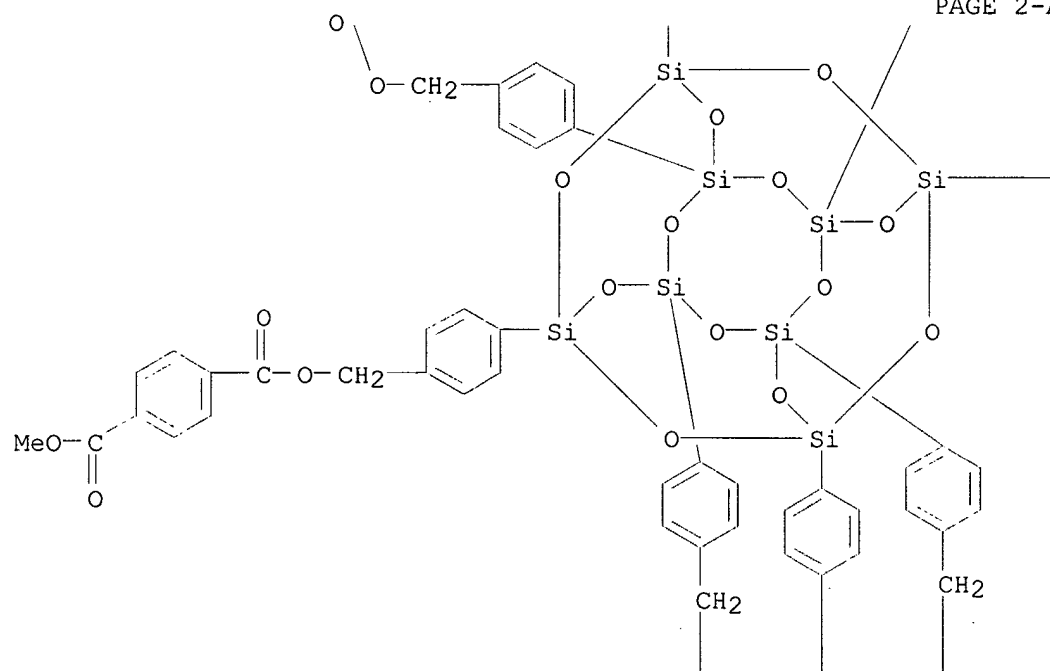
RN 127822-96-2 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, 1,1',1'',1''',1'''',1''''',1''''',1''''''-
octamethyl 4,4',4'',4''',4''''',4''''',4''''',4''''''-
[pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctakis(4,1-phenylenemethyl)] ester (9CI) (CA INDEX NAME)

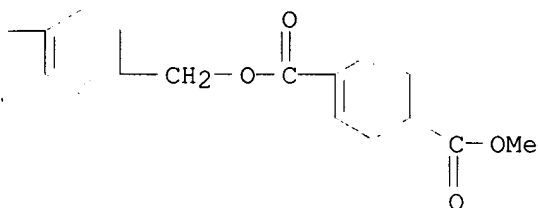
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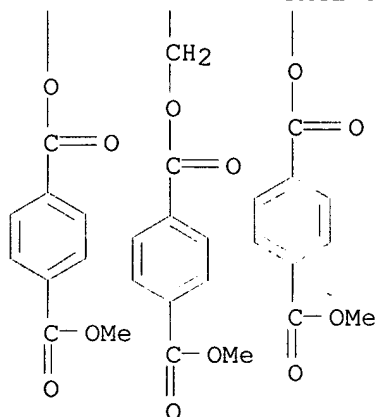
PAGE 2-A



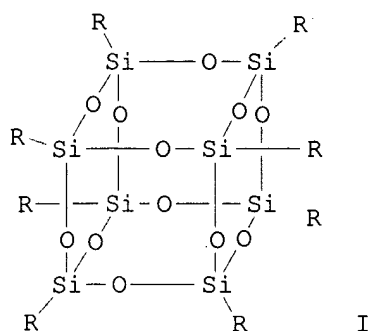
PAGE 2-B



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L82 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
 AN 1990:179082 HCAPLUS
 DN 112:179082
 TI New polyhedral **oligosilsesquioxanes** via the catalytic
 hydrogenation of aryl-containing **silsesquioxanes**
 AU Feher, Frank J.; Budzichowski, Theodore A.
 CS Dep. Chem., Univ. California, Irvine, CA, 92717, USA
 SO Journal of Organometallic Chemistry (1989), 373(2), 153-63
 CODEN: JORCAI; ISSN: 0022-328X
 DT Journal
 LA English
 CC 29-6 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 75
 OS CASREACT 112:179082
 GI



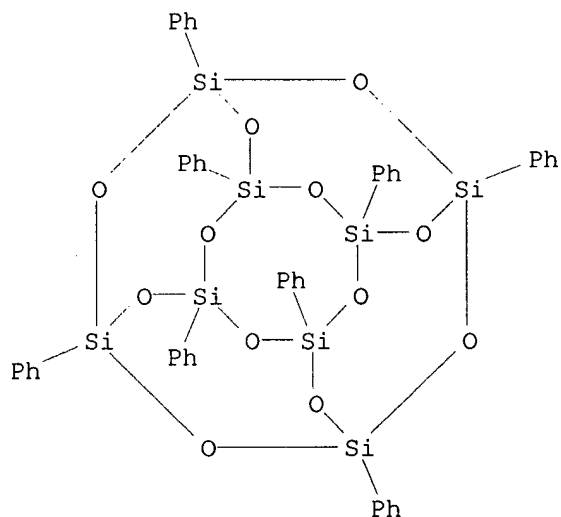
- AB The hydrolytic condensation of RSiCl_3 (R = benzyl, *m*-tolyl, 3,5-dimethylphenyl) gives good yields of the corresponding octameric aryl **silsesquioxanes** (I). A single-crystal x-ray diffraction study of highly soluble I (R = benzyl) reveals that highly efficient crystal packing can be accomplished without the inclusion of solvent or the strong intermol. π -stacking arrangements that normally lead to poor solubility properties. The catalytic hydrogenation of aryl polyhedral **oligosilsesquioxanes** (POSS) affords high yields of the corresponding aliphatic **silsesquioxanes**. These new **silsesquioxanes** display thermal and phys. properties comparable to the corresponding aryl-containing POSS but generally have much greater solubilities in common organic solvents. The catalytic hydrogenation of $[\text{Ph}_{12}\text{Si}_{12}\text{O}_{20}]$ affords iso- $[\text{Cy}_{12}\text{Si}_{12}\text{O}_{20}]$ (Cy = cyclohexyl) which possesses local C_{2v} rather than D_{6h} symmetry.
- ST **oligosilsesquioxane** polyhedral; hydrogenation aryl **silsesquioxane**; crystal structure benzyl **silsesquioxane**; mol structure benzyl **silsesquioxane**
- IT Hydrogenation
(of aryl-containing **silsesquioxanes**)
- IT Crystal structure
Molecular structure
(of octameric benzyl **silsesquioxane**)
- IT **Silsesquioxanes**
RL: SPN (Synthetic preparation); PREP (Preparation)
(polyhedral oligo-, preparation and hydrogenation of)
- IT Condensation reaction
(hydrolytic, of benzyl- and aryltrichlorosilanes, octameric aryl **silsesquioxanes** from)
- IT 5256-79-1 18923-59-6 19086-33-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation of)
- IT 1333-74-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation, of aryl-containing **silsesquioxanes**)
- IT 770-10-5, Benzyltrichlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolytic condensation of, octameric benzyl **silsesquioxane** from)
- IT 2942-84-9, Trichloro(3,5-dimethylphenyl)silane 13688-75-0,
Trichloro(*m*-tolyl)silane
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolytic condensation reaction of, octameric **arylsilsesquioxane** from)
- IT 126362-02-5P 126362-03-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and hydrogenation of)

IT 3809-28-7P 126362-04-7P 126362-05-8P
 126362-06-9P 126362-07-0P 126362-08-1P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

IT 126362-01-4P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation, crystal structure, and hydrogenation of)

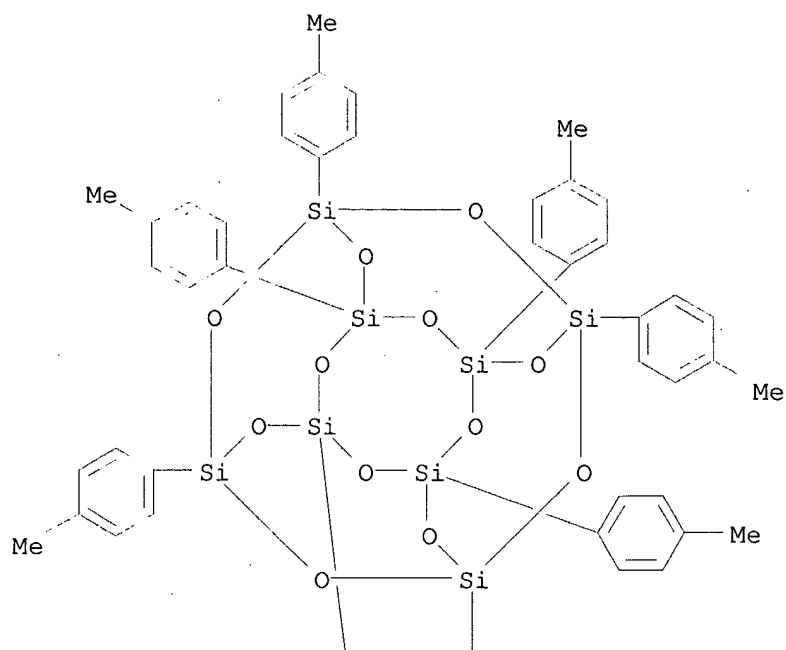
IT 5256-79-1 19086-33-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (hydrogenation of)

RN 5256-79-1 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octaphenyl- (7CI, 8CI,
 9CI) (CA INDEX NAME)

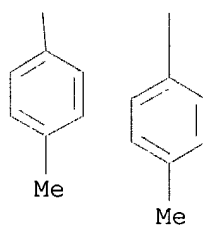


RN 19086-33-0 HCAPLUS
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-methylphenyl)-
 (9CI) (CA INDEX NAME)

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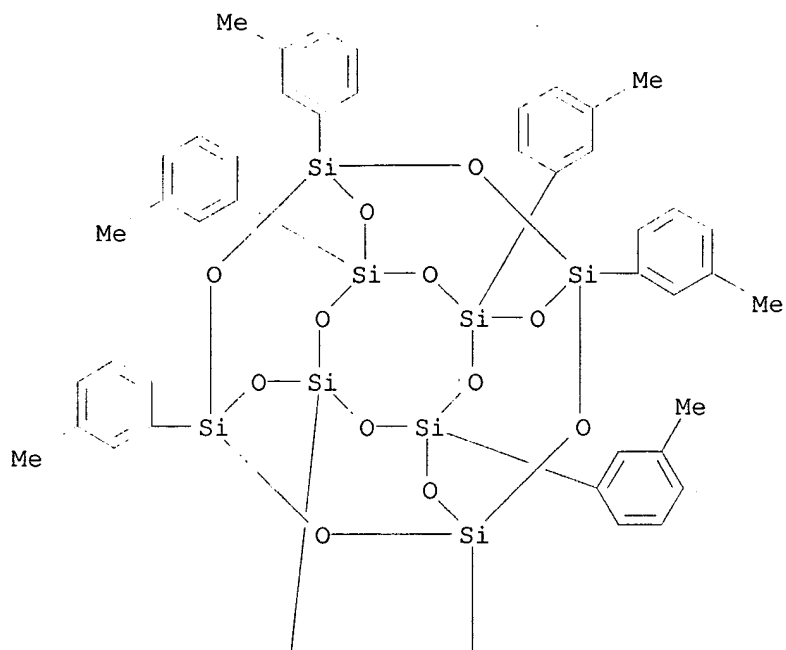


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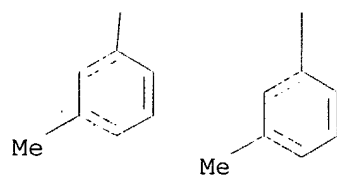


IT 126362-02-5P 126362-03-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation and hydrogenation of)
RN 126362-02-5 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(3-methylphenyl)-
(9CI) (CA INDEX NAME)

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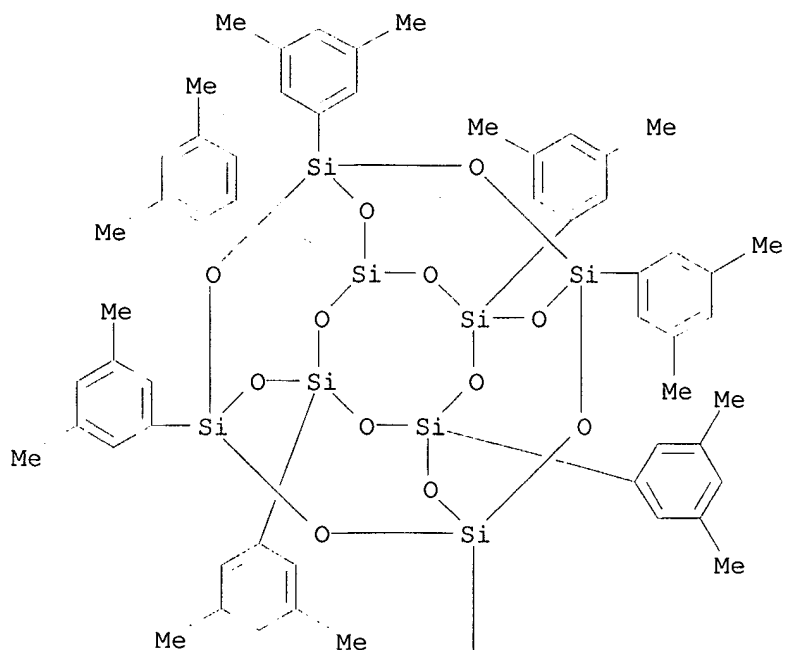


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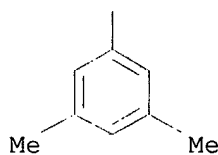


RN 126362-03-6 HCAPLUS
CN Pentacyclo[9.5.1.1.3,9.15,15.17,13]octasiloxane, octakis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)

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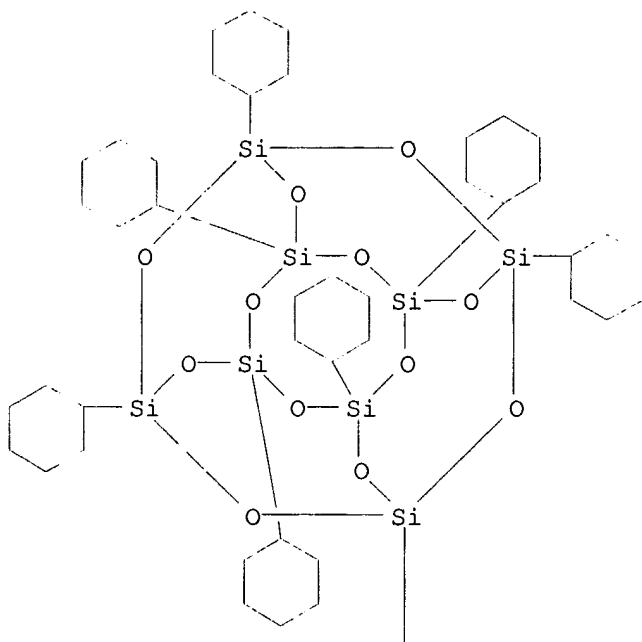
IT 3809-28-7P 126362-04-7P 126362-05-8P
 126362-06-9P 126362-08-1P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

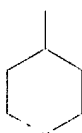
RN 3809-28-7 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octacyclohexyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

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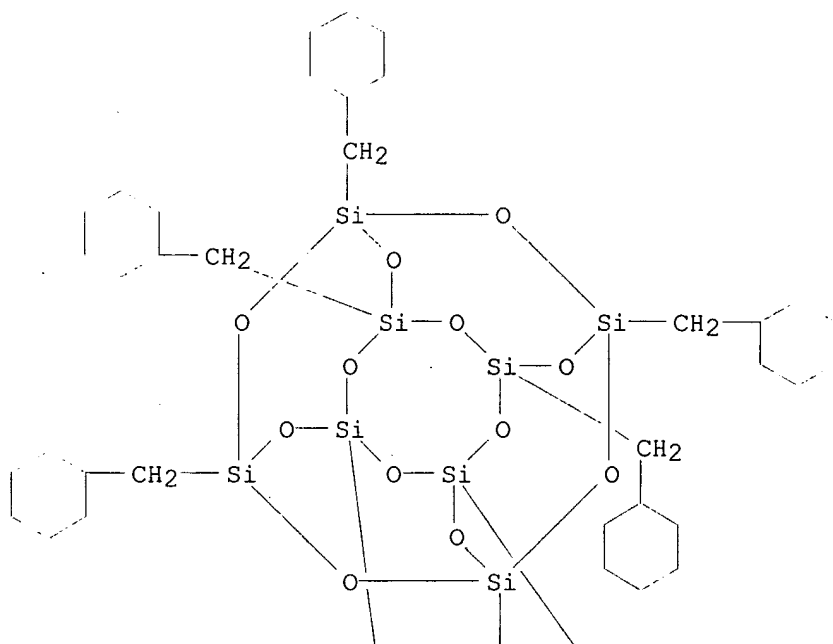


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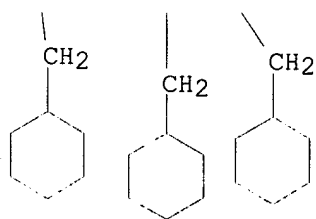


RN 126362-04-7 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(cyclohexylmethyl)-
(9CI) (CA INDEX NAME)

PAGE 1-A

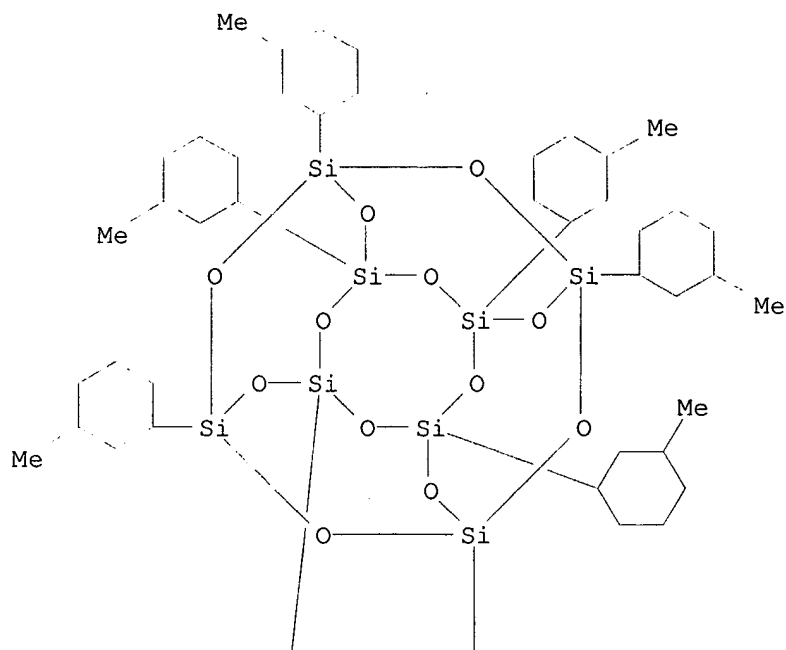


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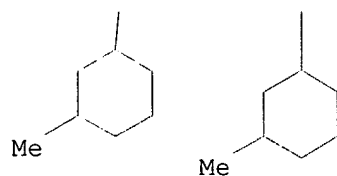


RN 126362-05-8 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(3-methylcyclohexyl)- (9CI) (CA INDEX NAME)

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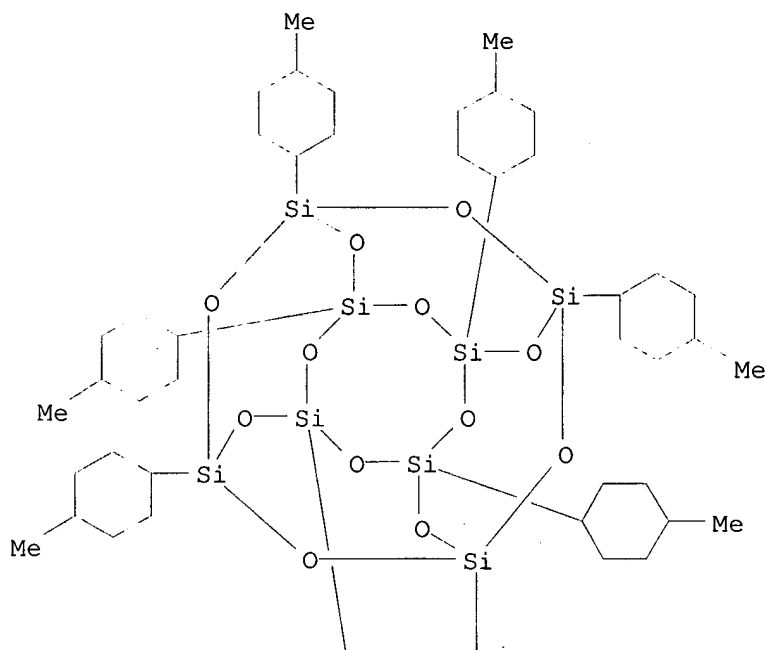


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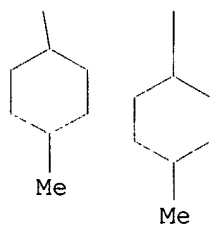


RN 126362-06-9 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-methylcyclohexyl)- (9CI) (CA INDEX NAME)

PAGE 1-A

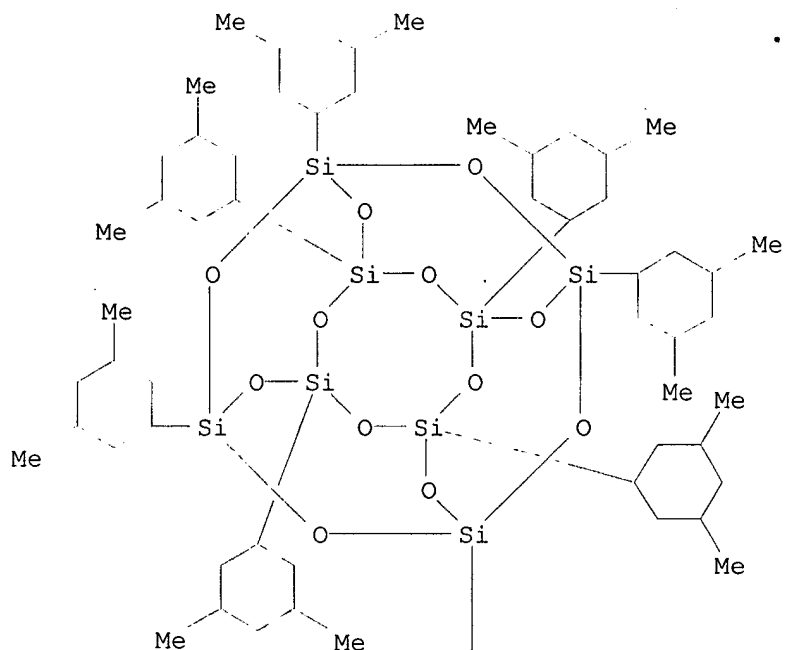


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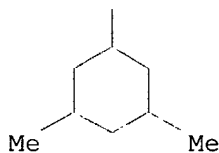


RN 126362-08-1 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(3,5-dimethylcyclohexyl)- (9CI) (CA INDEX NAME)

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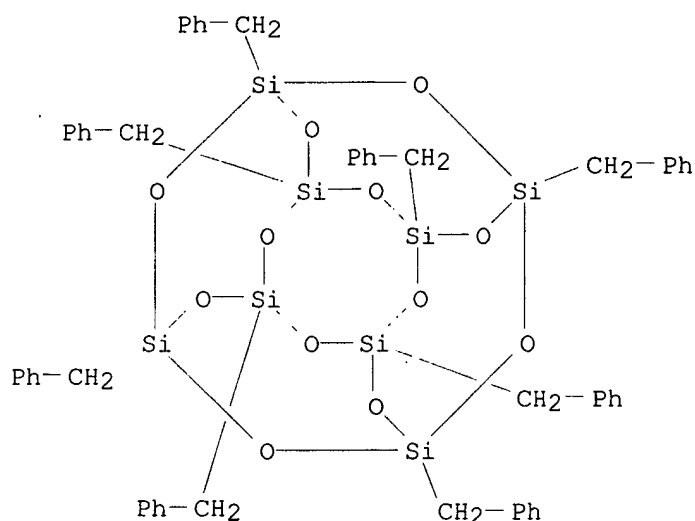


IT 126362-01-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation, crystal structure, and hydrogenation of)

RN 126362-01-4 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(phenylmethyl)-
(9CI) (CA INDEX NAME)



L82 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 1962:31519 HCAPLUS

DN 56:31519

OREF 56:5992g-i

TI Octa(arylsilsesquioxanes), (ArSi)₈O₁₂ I. Phenyl, 4-tolyl, and 1-naphthyl compounds

AU Olsson, Kjell; Gronwall, Christina

CS Univ. Uppsala, Swed.

SO Arkiv foer Kemi (1961), 17, 529-40

CODEN: ARKEAD; ISSN: 0365-6128

DT Journal

LA English

CC 33 (Organometallic and Organometalloidal Compounds)

AB Octa(arylsilsesquioxanes) were prepared by refluxing 475 ml. 95% EtOH and RSiCl₃ 48 hrs., filtering, and washing the product with MeOH, recrystg. and drying. The following octa(R-substituted silsesquioxanes) were prepared (R and m.p. given): Ph (I), -; 4-MeC₆H₄, 400° (decomposition); 1-naphthyl, 343°. I and fuming HNO₃ gave (O₂NC₆H₄Si)₈O₁₂, m. 325° (decomposition). I prepared by O. (CA 53, 17887e), Barry, et al. (CA 50, 4770e), and Sprung and Guenther (CA 52, 13661i) were identical and octameric, although polymorphic. (RSi)₈O₁₂ (R = 3-ClC₆H₄, 4-BrC₆H₄, and 4-MeOC₆H₄) could not be synthesized.

IT Silsesquioxanes

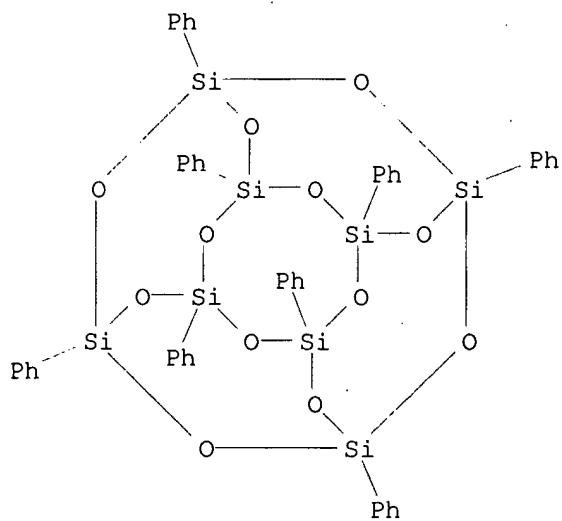
IT 1719-57-9, Silane, chloro(chloromethyl)dimethyl- 4723-64-2, Silacyclopenta-2,4-diene 5256-79-1, Octasilsesquioxane, octaphenyl- 6233-20-1, Silane, trichloro(2-chloroethyl)- 7787-82-8, Silane, trichloro(1-chloroethyl)- 18145-34-1, Silacyclopenta-2,4-diene, 1,1-dichloro- 18971-75-0, Octasilsesquioxane, octa-1-naphthyl- 19086-33-0, Octasilsesquioxane, octa-p-tolyl- 29733-54-8, Silane, dichloro(trichloromethyl)(trichlorophenyl)- 91385-78-3, Silacyclopentane, tetrachloro- 107987-98-4, Octasilsesquioxane, octakis(nitrophenyl)- (preparation of)

IT 5256-79-1, Octasilsesquioxane, octaphenyl- 18971-75-0, Octasilsesquioxane, octa-1-naphthyl- 19086-33-0, Octasilsesquioxane, octa-p-tolyl- 107987-98-4, Octasilsesquioxane, octakis(nitrophenyl)- (preparation of)

RN 5256-79-1 HCAPLUS

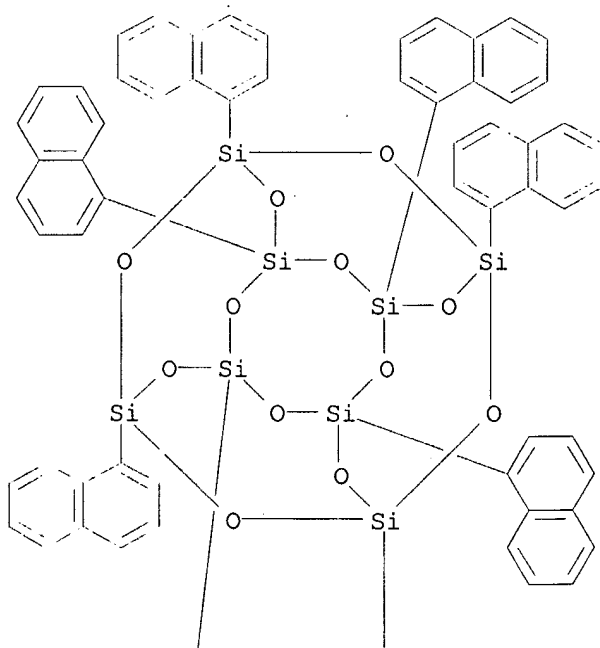
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octaphenyl- (7CI, 8CI,

9CI) (CA INDEX NAME)

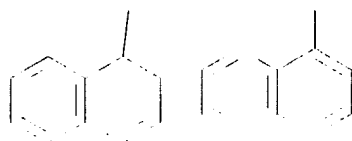


RN 18971-75-0 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octa-1-naphthalenyl- (9CI)
(CA INDEX NAME)

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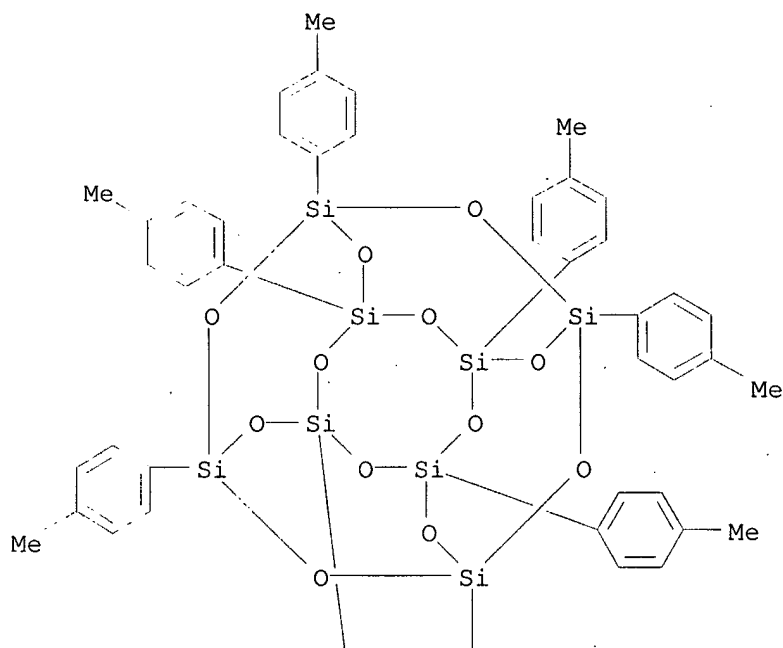


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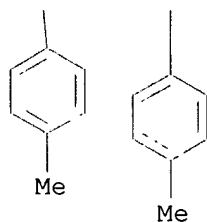


RN 19086-33-0 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-methylphenyl)-
(9CI) (CA INDEX NAME)

PAGE 1-A

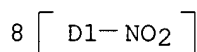
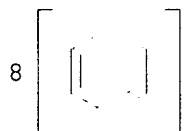


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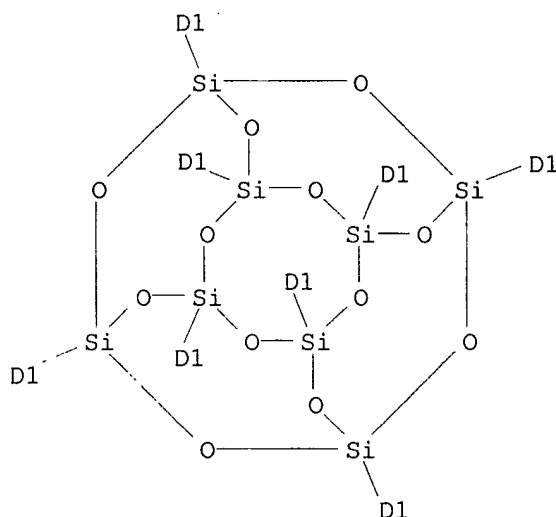


RN 107987-98-4 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(nitrophenyl)-
(9CI) (CA INDEX NAME)

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L82 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN

AN 1962:28897 HCAPLUS

DN 56:28897

OREF 56:5478g-i,5479a

TI Crystal structure of substituted octa(silsesquioxanes),
(RSiO_{1.5})₈ and (ArSiO_{1.5})₈

AU Larsson, Kare

SO Arkiv foer Kemi (1960), 16, 209-14

CODEN: ARKEAD; ISSN: 0365-6128

DT Journal

LA Unavailable

CC 8 (Crystallization and Crystal Structure)

AB Previously described methods were used (cf. preceding abstract). In (RSiO_{1.5})₈, R = Me(I), Et(II), Pr(III), iso-Pr(IV), and Bu(V). For I, the data were reported earlier (loc. cit.). For II the unit cell is hexagonal, a 14.04 ± 0.02, c 14.54 ± 0.03 Å, Z = 3, space group R.hivin.3, calculated d. 1.30, exptl, d. 1.31. For III, there are two forms; one, existing above -1°, is hexagonal, a 15.33 ± 0.03, c 16.44 ± 0.04 Å, Z = 3, space group R.hivin.3, calculated d. 1.09, exptl, d. 1.08; the other, existing below -1°, is triclinic, a 10.0, b 9.9, c 10.3, α 95°, β 92°, γ 92°, Z = 1, calculated d. 1.20, space group P.hivin.1- or P1. For IV, the unit cell is

hexagonal $a = 15.40 \pm 0.02$, $c = 15.34 \pm 0.03$ A., $Z = 3$, exptl. $d. = 1.18$, calculated $d. = 1.20$, space group R.hivin.3. For V, the unit cell is triclinic, $a = 13.0$, $b = 9.9$, $c = 9.9$ A., $\alpha = 100^\circ$, $\beta = 94^\circ$, $\gamma = 98^\circ$, $Z = 1$, exptl. $d. = 1.10$, calculated $d. = 1.14$, space group P.hivin.1 or P1. In $(\text{ArSiO}_{1.5})_8$ Ar = Ph(VI), 4-tolyl(VII), and 1-naphthyl(VIII). For VI, two forms exist; one is triclinic, $a = 12.6$, $b = 10.8$, $c = 10.7$ A., $\alpha = 70^\circ$, $\beta = 76^\circ$, $\gamma = 79^\circ$, $Z = 1$, exptl. $d. = 1.34$, calculated $d. = 1.29$, space group P.hivin.1 or P1; the other is monoclinic $a = 13.6$, $b = 12.8$, $c = 20.4$ A., $\alpha = 90^\circ$, $\beta = 131^\circ$, $\gamma = 90^\circ$, $Z = 2$, exptl. $d. = 1.30$, calculated $d. = 1.27$, space group P2/m or Pm. For VII, the unit cell is orthorhombic $a = 14.8$, $b = 16.8$, $c = 24.0$ A., $Z = 4$, exptl. $d. = 1.25$, calculated $d. = 1.27$, space group Pccn. For VIII, the unit cell is triclinic $a = 15.0$, $b = 16.2$, $c = 15.9$ A., $\alpha = 82^\circ$, $\beta = 89^\circ$, $\gamma = 87^\circ$, $Z = 2$, exptl. $d. = 1.24$, calculated $d. = 1.24$, space group P.hivin.1 or P1.

IT Crystal structure

(of octa(methylsiloxane))

IT 281-50-5, Octasilsesquioxane 5256-79-1,
Octasilsesquioxane, octaphenyl- 18971-70-5,
Octasilsesquioxane, octaethyl- 18971-71-6,
Octasilsesquioxane, octapropyl- 18971-75-0,
Octasilsesquioxane, octa-1-naphthyl- 19086-26-1,
Octasilsesquioxane, octabutyl- 19086-33-0,
Octasilsesquioxane, octa-p-tolyl- 19086-35-2,
Octasilsesquioxane, octaisopropyl-

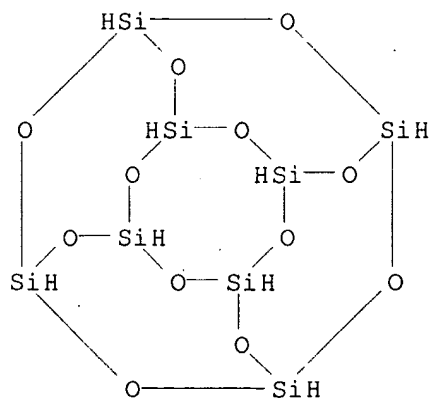
(structure of)

IT 281-50-5, Octasilsesquioxane 5256-79-1,
Octasilsesquioxane, octaphenyl- 18971-70-5,
Octasilsesquioxane, octaethyl- 18971-71-6,
Octasilsesquioxane, octapropyl- 18971-75-0,
Octasilsesquioxane, octa-1-naphthyl- 19086-26-1,
Octasilsesquioxane, octabutyl- 19086-33-0,
Octasilsesquioxane, octa-p-tolyl- 19086-35-2,
Octasilsesquioxane, octaisopropyl-

(structure of)

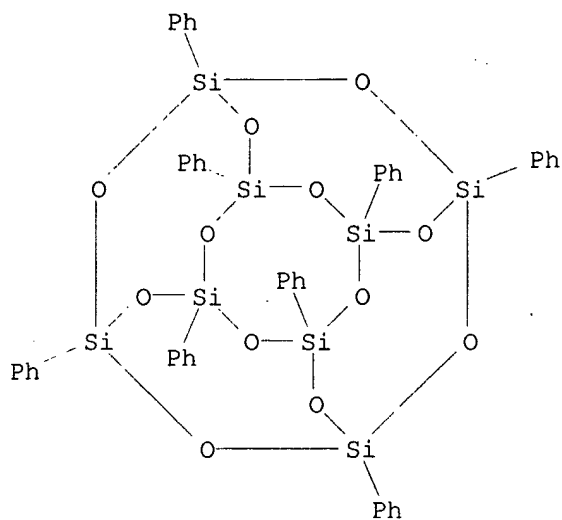
RN 281-50-5 HCAPLUS

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane (6CI, 8CI, 9CI) (CA INDEX NAME)

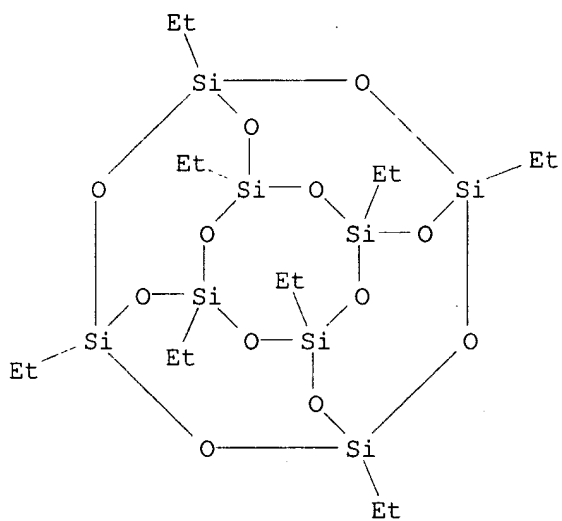


RN 5256-79-1 HCAPLUS

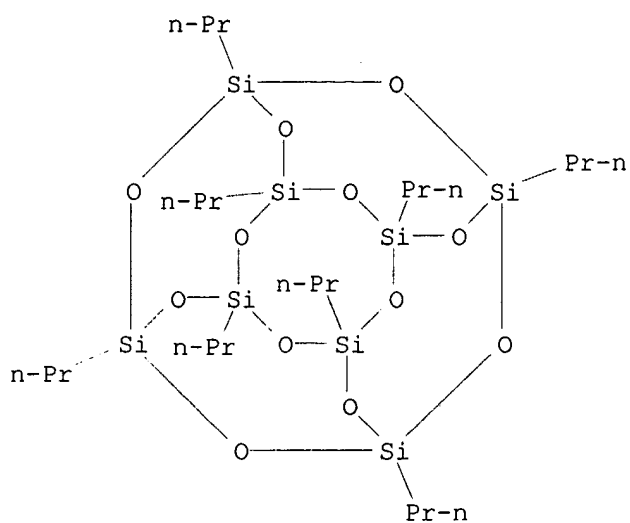
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octaphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 18971-70-5 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octaethyl- (9CI) (CA
INDEX NAME)

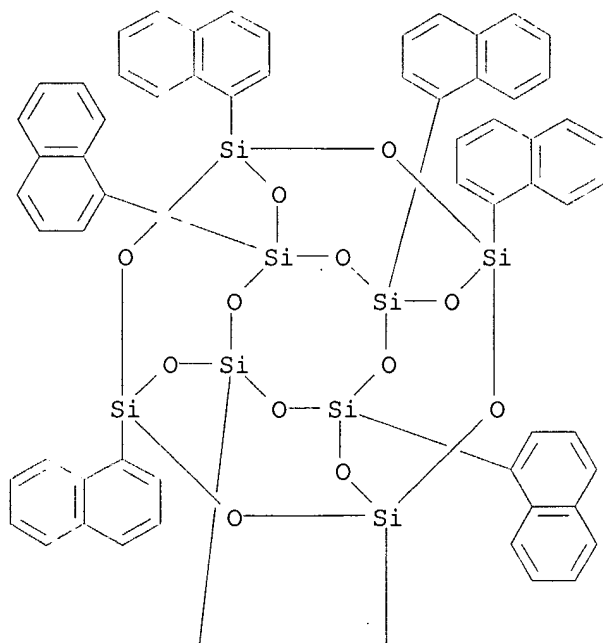


RN 18971-71-6 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octapropyl- (9CI) (CA
INDEX NAME)

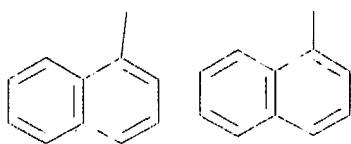


RN 18971-75-0 HCAPLUS
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(CA INDEX NAME)

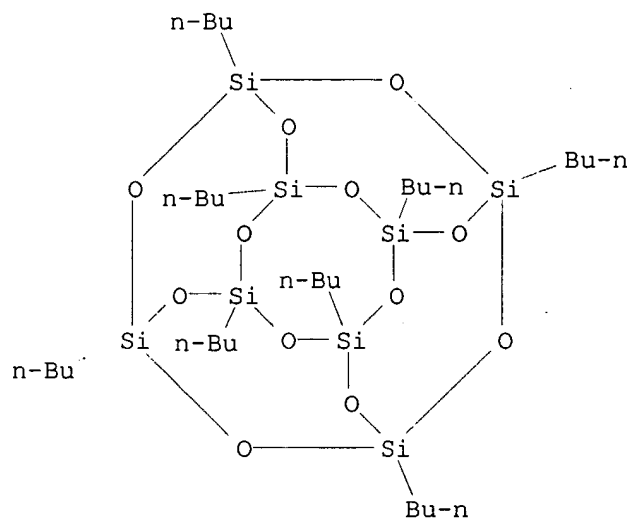
PAGE 1-A



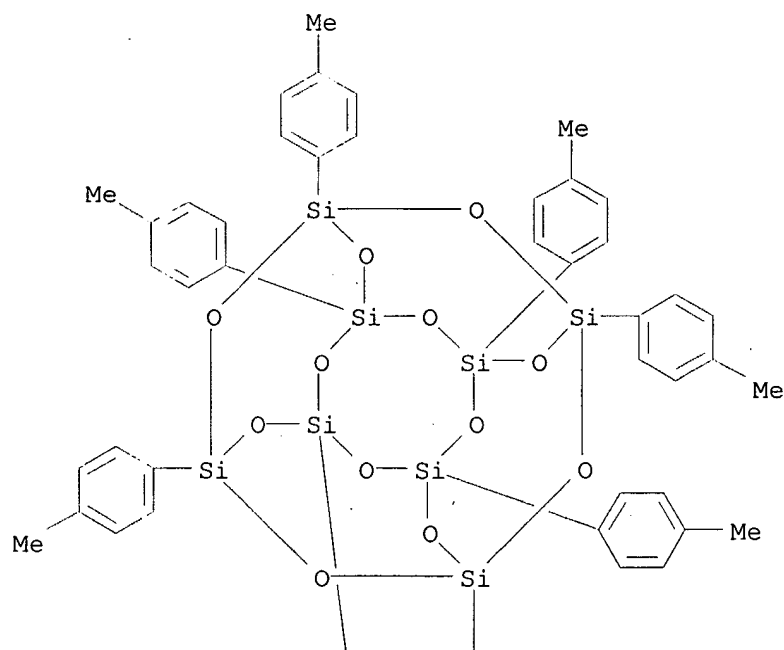
PAGE 2-A



RN 19086-26-1 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octabutyl- (9CI) (CA INDEX NAME)

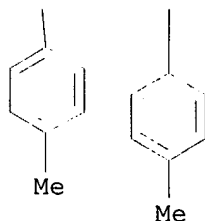


RN 19086-33-0 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-methylphenyl)- (9CI) (CA INDEX NAME)

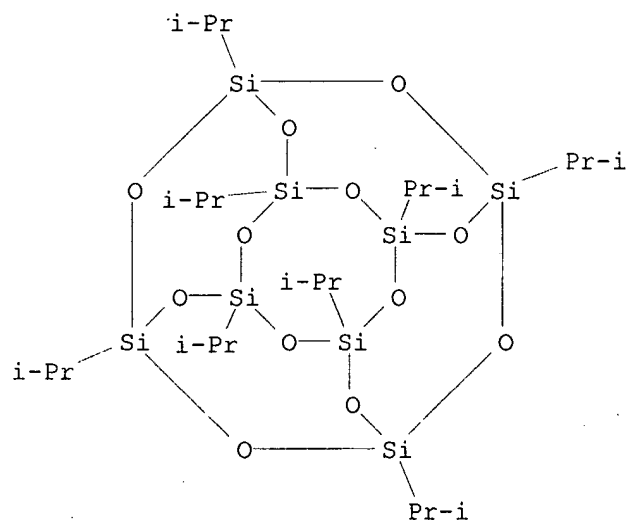


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RN 19086-35-2 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(1-methylethyl)-
(9CI) (CA INDEX NAME)



=> fil reg

FILE 'REGISTRY' ENTERED AT 11:03:35 ON 18 NOV 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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provided by InfoChem.

STRUCTURE FILE UPDATES: 17 NOV 2003 HIGHEST RN 618055-92-8
DICTIONARY FILE UPDATES: 17 NOV 2003 HIGHEST RN 618055-92-8

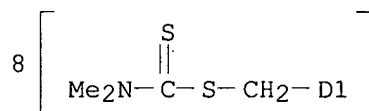
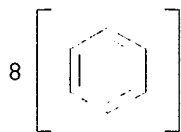
TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2003

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

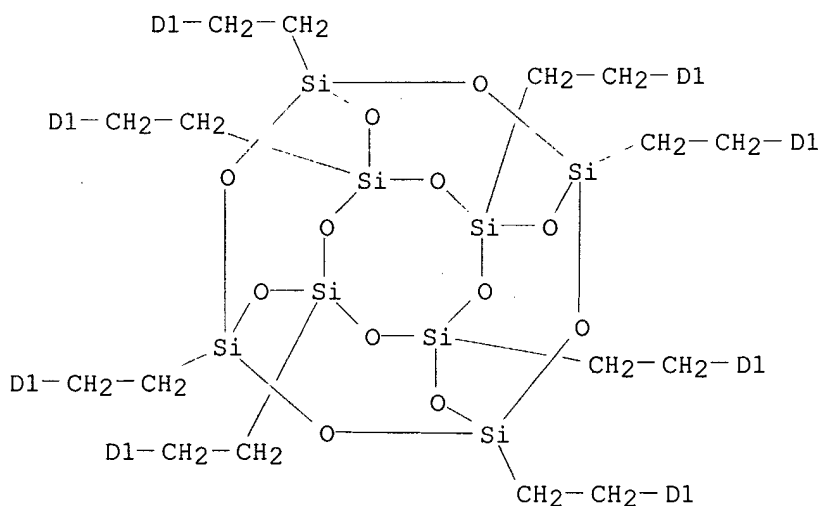
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP
PROPERTIES for more information. See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

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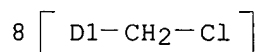


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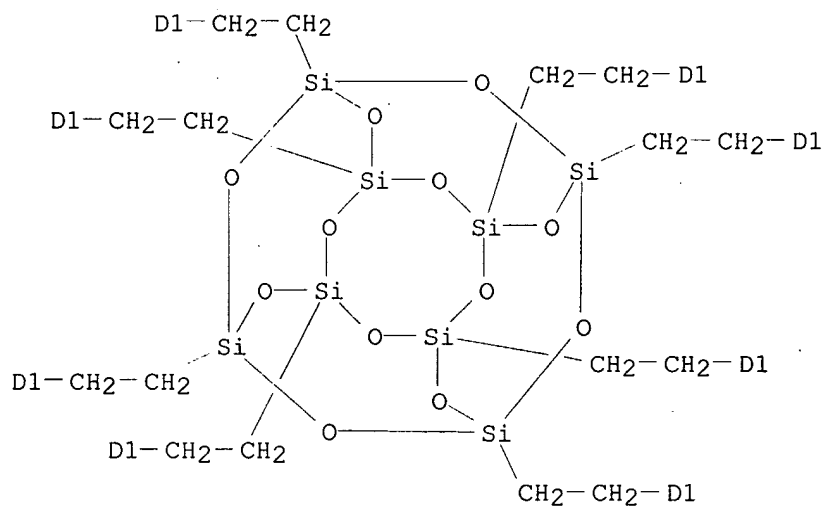
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L31 ANSWER 3 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 485381-54-2 REGISTRY
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis[2-
 [(chloromethyl)phenyl]ethyl]- (9CI) (CA INDEX NAME)
 MF C72 H80 Cl8 O12 Si8
 CI IDS
 SR CA
 LC STN Files: CA, CAPLUS

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1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:90253

L31 ANSWER 4 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 478921-70-9 REGISTRY

CN Benzenesulfonyl chloride, pentacyclo[9.5.1.13,9:15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-octayloctakis- (9CI) (CA INDEX NAME)

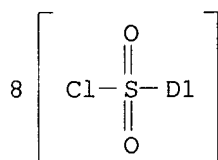
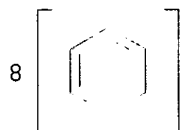
MF C48 H32 Cl8 O28 S8 Si8

CI IDS

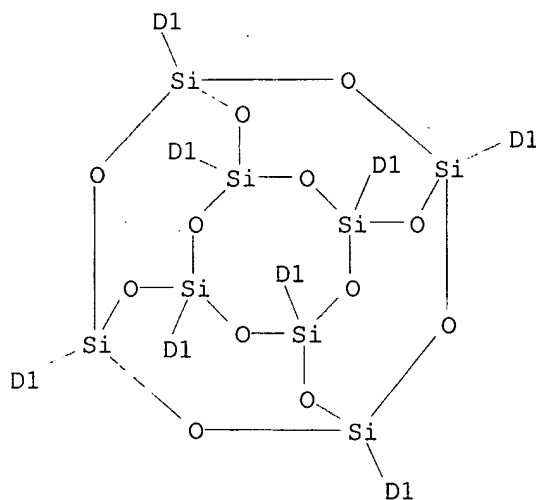
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LC STN Files: CA, CAPLUS, USPATFULL

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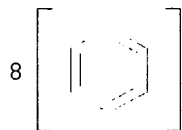


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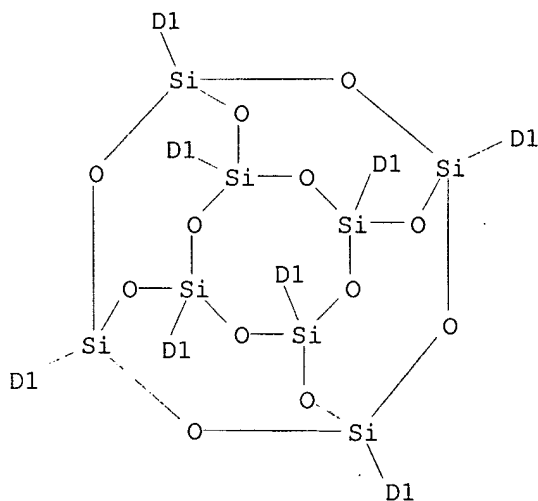
L31 ANSWER 5 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 478921-68-5 REGISTRY
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, 1,3,5,7,9,11,13,15-
octakis(bromophenyl)- (9CI) (CA INDEX NAME)
MF C48 H32 Br8 O12 Si8
CI IDS
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

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8 (D1-Br)

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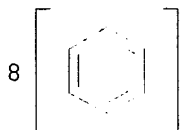


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 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:39736

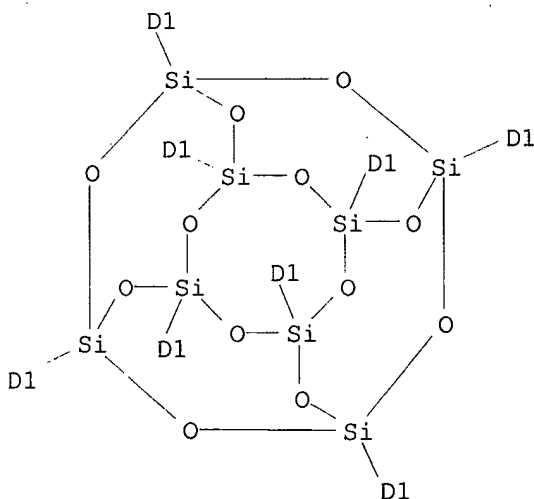
L31 ANSWER 6 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 478921-65-2 REGISTRY
 CN Ethanone, 1,1',1'',1''',1'''',1'''''',1''''''',1''''''''-
 (pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
 octayloctaphenylene)octakis- (9CI) (CA INDEX NAME)
 MF C64 H56 O20 Si8
 CI IDS
 SR CA
 LC STN Files: CA, CAPLUS, USPATFULL

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8 (D1-Ac)

PAGE 2-A

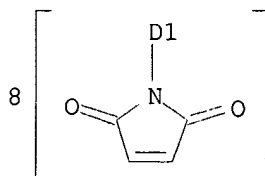


1 REFERENCES IN FILE CA (1907 TO DATE)
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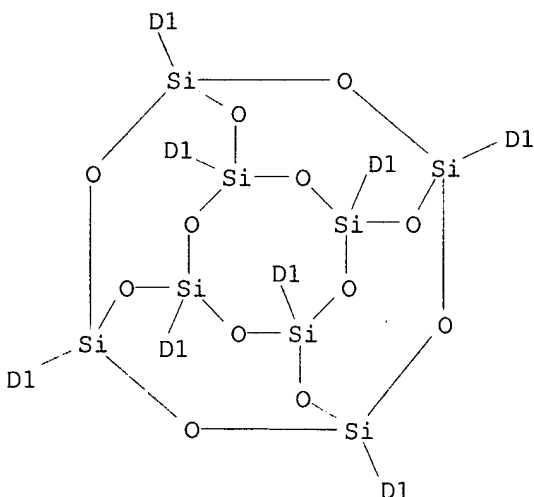
REFERENCE 1: 138:39736

L31 ANSWER 7 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 389635-60-3 REGISTRY
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis[3(or
 4)-nitrophenyl]- (9CI) (CA INDEX NAME)
 MF C48 H32 N8 O28 Si8
 CI IDS
 SR CA
 LC STN Files: CA, CAPLUS, USPATFULL

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2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:39736

REFERENCE 2: 136:102768

L31 ANSWER 9 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 389635-56-7 REGISTRY

CN 1H-Isoindole-1,3(2H)-dione, 2,2',2'',2''',2''''',2''''',2''''',2''''''-
(pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctaphenylene)octakis- (9CI) (CA INDEX NAME)

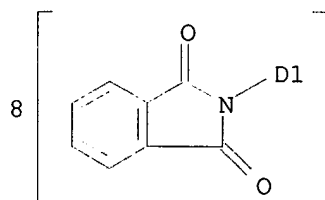
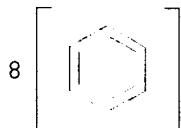
MF C112 H64 N8 O28 Si8

CI IDS

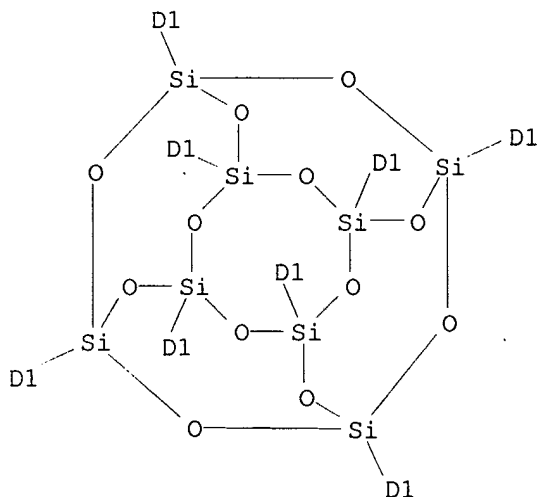
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LC STN Files: CA, CAPLUS, USPATFULL

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4 REFERENCES IN FILE CA (1907 TO DATE)
4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:338622

REFERENCE 2: 138:222163

REFERENCE 3: 138:39736

REFERENCE 4: 136:102768

L31 ANSWER 10 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 373366-41-7 REGISTRY

CN Benzenamine, ar,ar',ar'',ar''',ar''''',ar''''''',ar''''''''',ar'''''''''-
pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
octayloctakis- (9CI) (CA INDEX NAME)

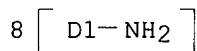
MF C48 H48 N8 O12 Si8

CI IDS, COM

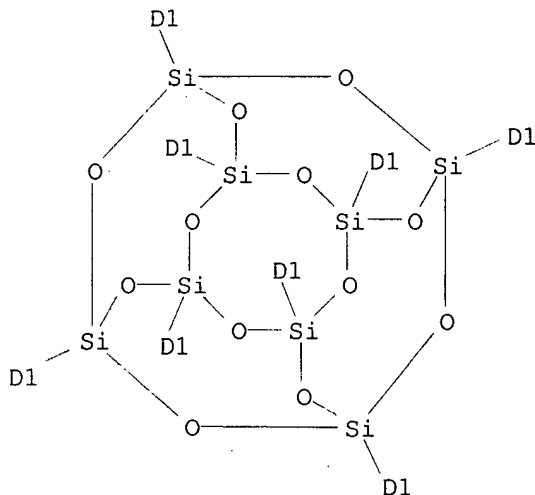
SR CA

LC STN Files: CA, CAPLUS, USPATFULL

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5 REFERENCES IN FILE CA (1907 TO DATE)
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 5 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 138:338622

REFERENCE 2: 138:222163

REFERENCE 3: 138:39736

REFERENCE 4: 136:102768

REFERENCE 5: 135:358558

L31 ANSWER 11 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 326865-15-0 REGISTRY

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(methylphenyl)-
 (9CI) (CA INDEX NAME)

MF C56 H56 O12 Si8

CI IDS

SR CA

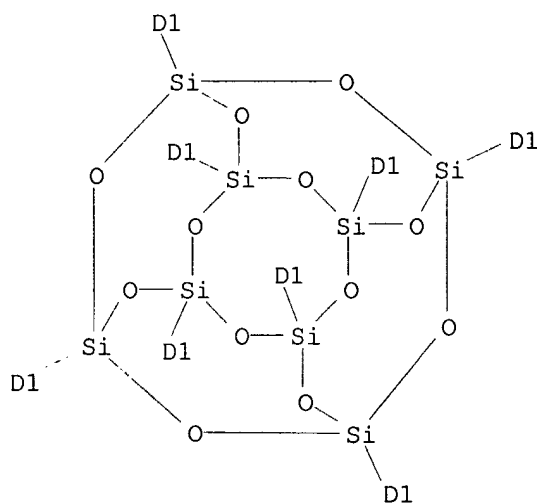
LC STN Files: CA, CAPLUS

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8 (D1-Me)

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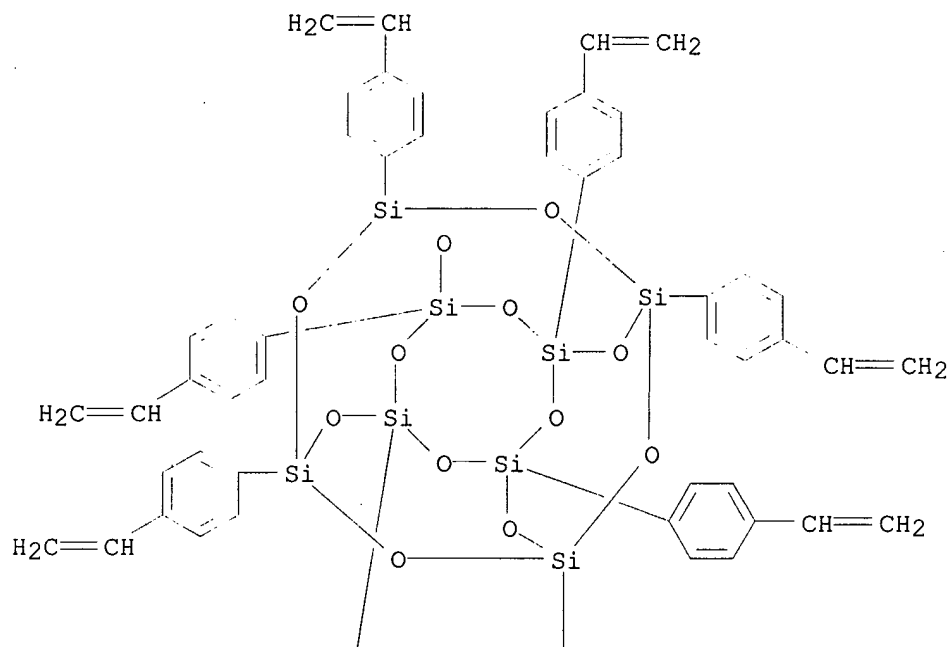


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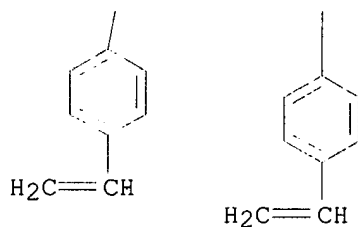
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L31 ANSWER 12 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 268202-74-0 REGISTRY
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-ethenylphenyl)-
 (9CI) (CA INDEX NAME)
 MF C64 H56 O12 Si8
 SR CA
 LC STN Files: CA, CAPLUS

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1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 132:335344

L31 ANSWER 13 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 127800-92-4 REGISTRY

CN Benzenemethanol, 4,4',4'',4''',4'''',4''''',4''''''',4''''''''-
pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,5,7,9,11,13,15-
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OTHER CA INDEX NAMES:

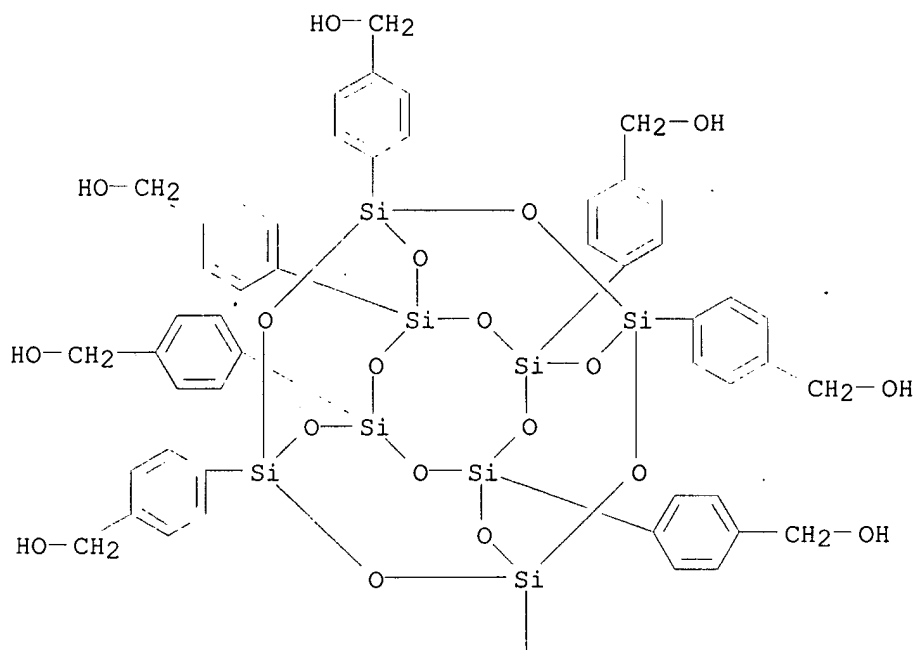
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, benzenemethanol deriv.

MF C56 H56 O20 Si8

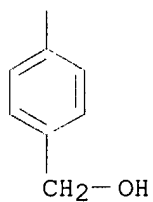
SR	CA
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LC STN Files: CA, CAPLUS, CASREACT

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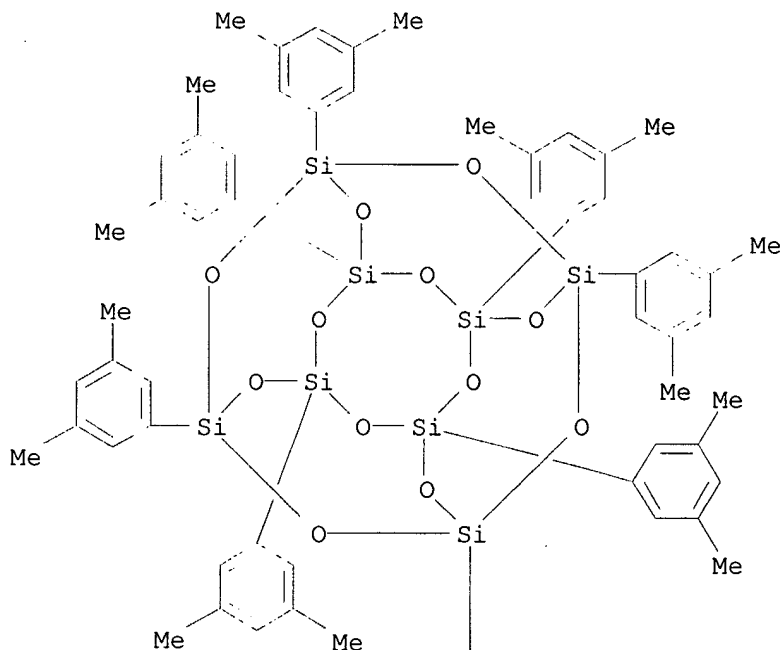
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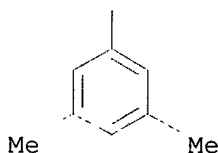
REFERENCE 2: 113:24226

L31 ANSWER 14 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 126362-03-6 REGISTRY
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)
 MF C64 H72 O12 Si8
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT

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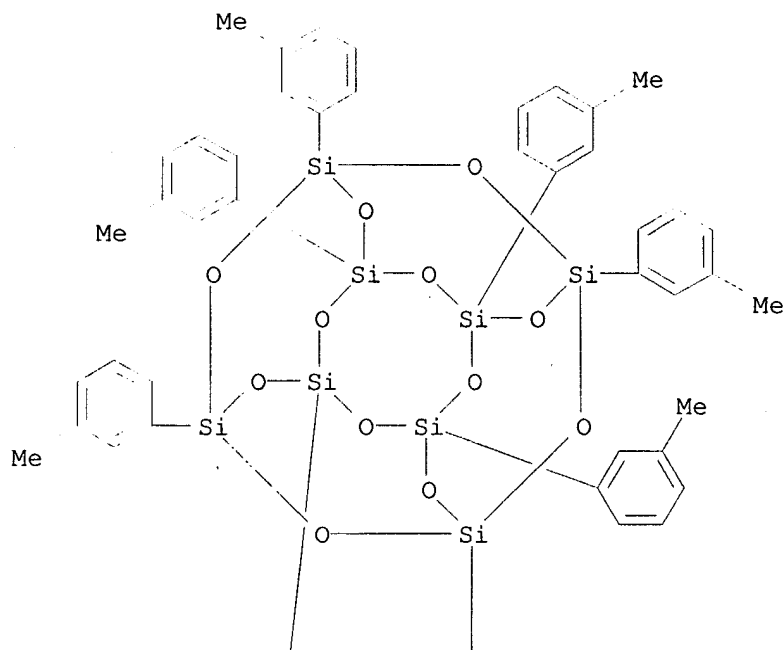


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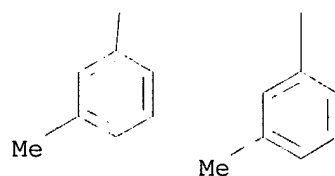
REFERENCE 1: 112:179082

L31 ANSWER 15 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
RN 126362-02-5 REGISTRY
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(3-methylphenyl)-
(9CI) (CA INDEX NAME)
MF C56 H56 O12 Si8
SR CA
LC STN Files: CA, CAPLUS, CASREACT

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1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 112:179082

L31 ANSWER 16 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN
 RN 107987-98-4 REGISTRY
 CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(nitrophenyl)-
 (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Octasilsesquioxane, octakis(nitrophenyl)- (7CI)

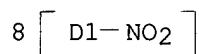
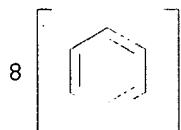
MF C48 H32 N8 O28 Si8

CI IDS

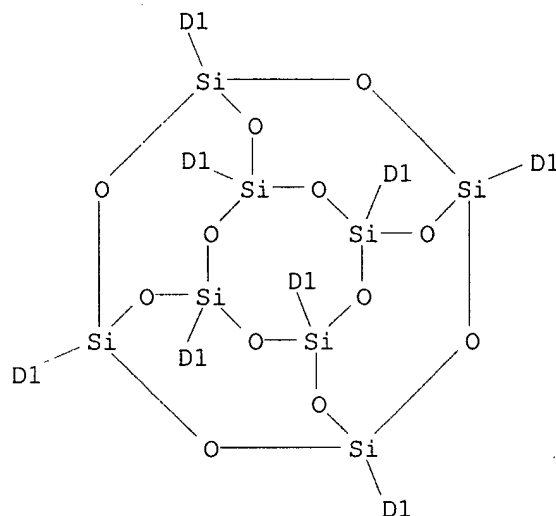
SR CAOLD

LC STN Files: CA, CAOLD, CAPLUS

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2 REFERENCES IN FILE CA (1907 TO DATE)
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 138:338622

REFERENCE 2: 56:31519

L31 ANSWER 17 OF 17 REGISTRY COPYRIGHT 2003 ACS on STN

RN 19086-33-0 REGISTRY

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-methylphenyl)-
 (9CI) (CA INDEX NAME)

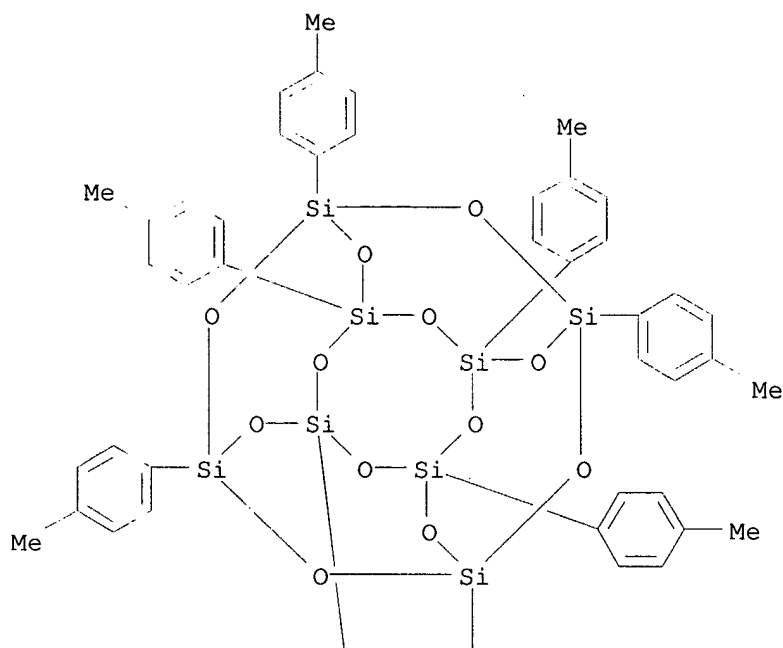
OTHER CA INDEX NAMES:

CN Octasilsesquioxane, octa-p-tolyl- (7CI)

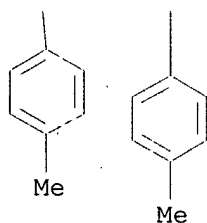
MF C56 H56 O12 Si8

LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS, CASREACT
 (*File contains numerically searchable property data)

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3 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 112:179082

REFERENCE 2: 56:31519

REFERENCE 3: 56:28897

=> d ide can tot 132

L32 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS on STN

RN 5256-79-1 REGISTRY

CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octaphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

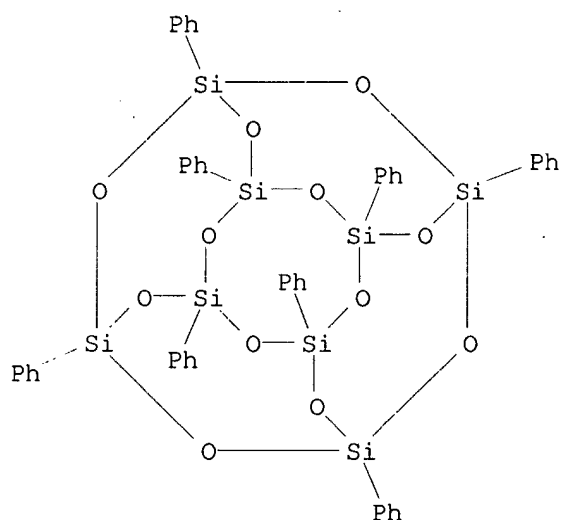
OTHER CA INDEX NAMES:

CN Octasilsesquioxane, octaphenyl- (6CI)

OTHER NAMES:

CN 1,3,5,7,9,11,13,15-Octaphenylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan

e
CN Octaphenylhexacyclooctasiloxane
CN Octaphenylsilsesquioxane
CN Phenyl-T8
DR 77036-59-0
MF C48 H40 O12 Si8
CI COM
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMLIST,
DETERM*, HODOC*, SPECINFO, USPAT2, USPATFULL
(*File contains numerically searchable property data)



38 REFERENCES IN FILE CA (1907 TO DATE)
4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
38 REFERENCES IN FILE CAPLUS (1907 TO DATE)
8 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 139:307842
REFERENCE 2: 139:231322
REFERENCE 3: 138:401895
REFERENCE 4: 138:354793
REFERENCE 5: 138:39736
REFERENCE 6: 137:295606
REFERENCE 7: 136:102768
REFERENCE 8: 134:179001
REFERENCE 9: 134:73334
REFERENCE 10: 133:342499

=> fil hcaold

FILE 'HCAOLD' ENTERED AT 11:04:15 ON 18 NOV 2003

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PRE-1967 CHEMICAL ABSTRACTS FILE WITH HOUR-BASED PRICING
FILE COVERS 1907-1966
FILE LAST UPDATED: 01 May 1997 (19970501/UP)

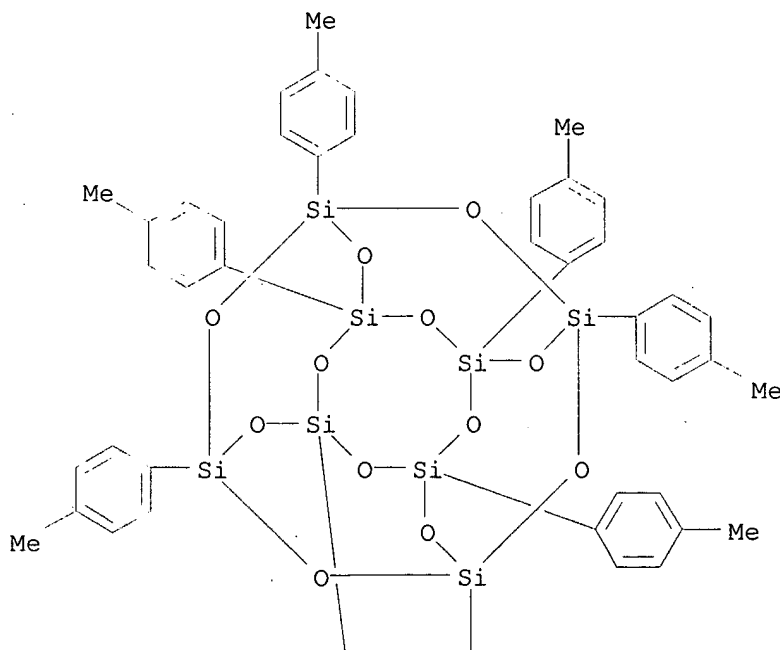
This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

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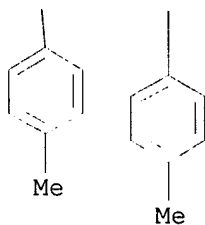
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L33 ANSWER 1 OF 3 HCAOLD COPYRIGHT 2003 ACS on STN
AN CA56:5992g CAOLD
TI octakis(arylsilsesquioxanes) - (I) phenyl, 4-tolyl, and 1-naphthyl compds.
AU Olsson, Kjell; Gronwall, C.
IT 1719-57-9 5256-79-1 6233-20-1 7787-82-8 18971-75-0
19086-33-0 29733-54-8
IT 19086-33-0
RN 19086-33-0 HCAOLD
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-methylphenyl)-
(9CI) (CA INDEX NAME)

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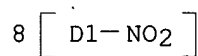
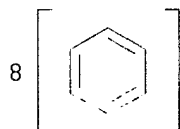
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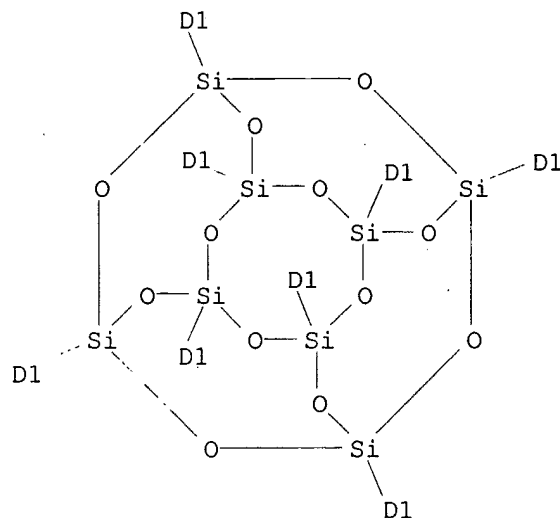
L33 ANSWER 2 OF 3 HCAOLD COPYRIGHT 2003 ACS on STN
AN CA56:5982h CAOLD
TI 4,5-dihalopyridaz-6-ones
AU Reicheneder, Franz; Dury, K.
PA Badische Anilin- & Soda-Fabrik A.-G.
DT Patent
PATENT NO. KIND DATE

PI DE 1086238
IT 107987-98-4
IT 107987-98-4
RN 107987-98-4 HCAOLD
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(nitrophenyl)-
(9CI) (CA INDEX NAME)

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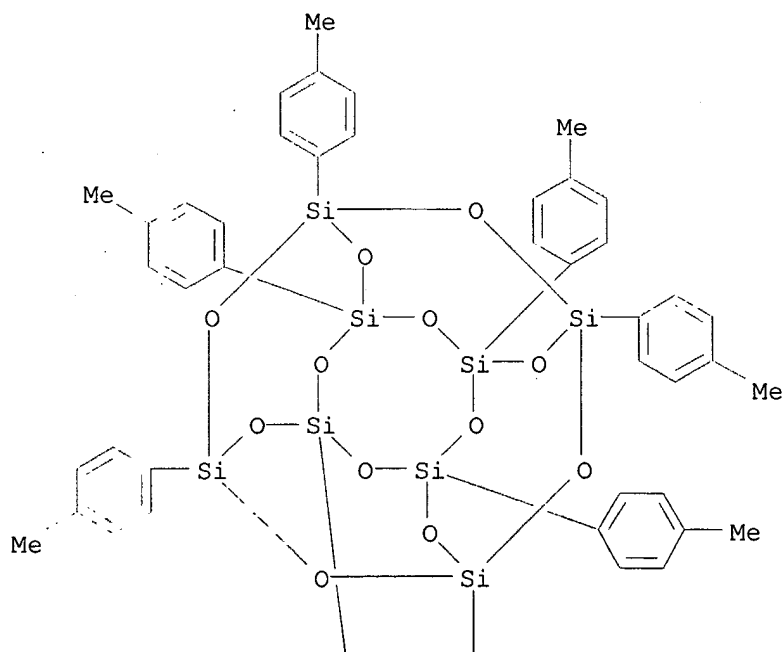


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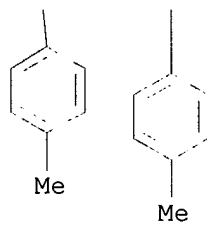


L33 ANSWER 3 OF 3 HCAOLD COPYRIGHT 2003 ACS on STN
AN CA56:5478g CAOLD
TI crystal structure of substituted octa(silsesquioxanes), (RSiO_{1.5})₈ and (ArSiO_{1.5})₈
AU Larsson, Kare
IT 5256-79-1 18971-70-5 18971-71-6 18971-75-0 19086-26-1
19086-33-0 19086-35-2
IT 19086-33-0
RN 19086-33-0 HCAOLD
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane, octakis(4-methylphenyl)-(9CI) (CA INDEX NAME)

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